COMPARISON OF THE PERFORMANCE OF ISLAMIC MUTUAL FUNDS vs. ETHICAL AND CONVENTIONAL MUTUAL FUNDS

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DECLARATION

I hereby declare that the materials contained in this thesis have not been previously submitted for a degree in this or any other university. I further declare that this thesis is solely based on my own research.

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ABSTRACT

Mutual funds are one of the key contributors to the globalisation of financial markets and one of the main sources of capital flows to emerging economies. This study explores and measures the performance of global Islamic mutual funds through an econometric analysis. Specifically, this study conducted an empirical comparison of performances between Islamic, ethical, and conventional mutual funds using market indexes as benchmarks. In furthering the analyses, this study also explored the 'Ramadan Effect' and another comparison/or causality test between Islamic mutual funds and oil prices in the short/long run.

Statistical techniques were used in analysing monthly net asset value (NAV), management fee, and Dow Jones Islamic market index (DJIMI), S&P 500 Index, FTSE4Good Global Index, MSCI AC World Index and oil prices include (i) the augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test; (ii) Granger causality; (iii) cointegration, and (iv)the Generalized Method of Moments Regression.

Findings of the study demonstrate that oil price did not cause Islamic mutual fund's performance during the period covered, while Islamic mutual fund's performance causes oil prices. Since demand and supply equilibrium on oil is unpredictable and oil is considered both as an investment commodity and a fuel, the stock market leads oil prices. Results also show that there is no significant difference between the performance of Islamic mutual funds and those of ethical and conventional mutual funds and between the Islamic mutual funds and the well-known Islamic indices during the whole period or during the bullish or bearish periods.

Table of Contents

Tables and Figures

CHAPTER ONE

INTRODUCTION

1.1. BACKGROUND

Islamic finance has experienced strong global growth in recent times with a particularly notable surge in demand since the late 1990s. This was primarily driven by excess liquidity in the sector, as the nations with considerable Islamic financing activities are also the nations with rich oil wealth, and therefore they channelled the revenues raised from strong long term oil price to also the development of the sector. With a strong inflow of assets to support and bolster growth, hence, Islamic funds demonstrated high positive returns generally higher than their benchmarks (Mansor & Bhatti, 2011).

Due to such developments, the number of Islamic Mutual Funds (IMFs) globally increased from the relatively niche number of 8 prior to 1992, to a more robust level of 95 funds with US$5 billion assets by 2000 (Elfakhani & Hassan, 2005). This illustrates an exponential growth rate of 1,087.5 % over the eight years. The number of IMFs has also grown tremendously in recent times at an average annual rate of 135.9% over the period of 1995 till 2005. The total assets for Islamic equity funds surged from US$800 million in 1996 to US$3.6 billion in 2003 (Abderrezak, 2008). According to Abderrezak, there were 29 Islamic equity funds in 1996, with this number increasing to 232 funds based on the latest list provided by Failaka Advisors in March 2009. In addition, according to Ernst and Young Islamic Funds and Investment Report 2010, there is $50bn in existing managed funds invested in equities according to Islamic principles. Also, Standard & Poor's Islamic Finance outlook projects that the current value of the Islamic financial services industry is more than $1 trillion and that the industry is predicted to grow to $4 trillion by 2020 at a rate of 10% per annum (2012).

In Malaysia, 68 funds showed an impact when analysed among the data on world Islamic equity funds, there were 29 Islamic Equity Funds (IEF's) in the year 1996, with the number increasing to 232 IEF's with the growth of the funds at 700% over the past 13 years from 1996 to 2009 (the calculation is based on 232-29/29). Since 2009, yet more funds have been launched with brighter market expectations, as Islamic finance industry registered unresented growth. As reported by the Securities Commission

Malaysia (SC) in December 1999, about 7.83% of the Kuala Lumpur Stock Exchange market capitalisation (KLSE MC) was held by mutual fund (MF) industry. The IMFs industry was just about 0.25% with total net asset values (NAV) of about 3.21%. Therefore, it is clear that despite the encouraging progress of IMFs since the industry started to grow in the 1990s, their market share remains relatively small.

Only a few studies (such as: Abderrezak, 2008; Abdullah *et al*., 2007; Elfakhani & Hassan, 2005; Elfakhani & Hassan, 2007; Girard & Hassan, 2009; Ismail & Shakrani, 2003) have previously been conducted on the investment performance of IMFs. However, here is very little evidence on the performance of IMFs, with most studies concentrated on small sample sizes and encompassing only a short observation period. For example, Ismail and Shakrani (2003) analysed the weekly price data for 12 IMFs and the *Shariah* Index as a whole for the period from 1 May 1999 until 31 July 2001. The *Shariah* Index is constituted solely of companies that are found to be compliant with the Islamic law, otherwise known as the *Shariah*. Most *Shariah* indices, which have been created so far, have been based on an existing or an underlying index, whose constituents have been screened for compliance by a board that is well-versed in the principles of the *Quran* and the *Shari'ah*. In the study, Ismail and Shakrani (2003) found that the adjusted R^2 and standard error of the conditional relationship was higher in down-markets than in up-markets. This suggests that *beta* is an appropriate measure for market risk and could be used as a tool in explaining cross-sectional differences in Islamic unit trusts' returns during market downturn.

In another empirical study, Elfakhani and Hassan (2005, 2007) used a sample of 46 IMFs to track the performance of IMFs between 1 January 1997 and 31 August 2002. They found no statistical difference in the performance of the *Shariah* compliant funds compared to their respective indices. Ismail and Shakrani (2003) further suggested that the behaviour of IMFs does not differ substantially from that of other conventional funds, with some IMFs outperforming their benchmarks and some underperforming them respectively. The major observation of the study revealed the strong performance of IMFs relative to both benchmarks, namely the Standard & Poor's (S&P) 500 and the Financial Times Stock Exchange (FTSE) Islamic indices, during the recession period. Since there is no significant risk-adjusted abnormal reward or penalty associated with investing in *Shariah*-compliant products and/or IMFs, they concluded that conventional

investors would consider IMFs in a portfolio collection, especially during slow market periods.

There is a high possibility, however, that such a result could be biased and represent a short term anomaly, due to the short time frame in which the study was conducted. In addition, the IMF industry was still in its nascent stage of development during this period, so Islamic fund managers would have had limited experience of operating within the new parameters and would have been faced with a rather limited diversification in portfolio funds, due to the limited fund availability of *Shariah*-compliant products.

The study by Abdullah *et al.* (2007) found similar findings to those of Elfakhani and Hassan (2005, 2007), and concluded that conventional funds perform better than Islamic funds during good economic periods, and *vice versa* during bad economic periods. In addition, Abdullah *et al.*. (2007) studied the respective performance returns of the IMFs and conventional mutual funds (CMFs) over the period 1995-2001, finding that both categories slightly underperformed the market and relatively poor selection skill and market timing ability were displayed for all classes of funds. Recently, Abderrezak (2008) found similar performance abilities displayed by both Islamic and ethical fund managers. Furthermore, using Fama's performance measures, no significant difference was revealed in performance between Islamic and ethical funds. Overall, both groups failed to outperform the S&P 500, the conventional index proxy for the US stock market.

Perhaps the most significant recurrent finding across previous studies in this field observes that mutual fund portfolios including IMFs performed better during the crisis (Abderrezak, 2008; Abdullah, *et al*., 2007; Elfakhani & Hassan, 2005, 2007), implying that its performance in terms of returns showed a mild lack of correlation with market movement; as a result, this suggests that holding IMFs within a portfolio can represent a potential hedge against market downturns.

It should be noted that the early studies on mutual funds included several works of noted academics such as Jensen (1968), Sharpe (1966) and Treynor (1965), who used the capital asset pricing model (CAPM) to compare the risk-adjusted returns of funds with those of a benchmark market portfolio. The findings of Sharpe (1966) and Jensen

(1968) demonstrated that mutual funds underperform market indexes and suggested that the net delivered returns were not sufficient to compensate investors for the additional layer of fees incurred by holding mutual funds. Friend *et al*. (1962) performed a systematic study on mutual funds, considering 152 funds with a data period of 1953 to 1958 and created bespoke S&P's indices of 5 securities. They concluded that the performance of mutual funds on the whole has not been superior to that of random portfolios, suggesting a lack of long term value in active management.

The alleged superior ability of professional fund managers to outperform the market was seriously challenged by this literature, as it also stated that, even if the bookkeeping and research expenses are not taken into account, actively managed funds seem to underperform their counterparts (Jensen, 1968). Also, the article shows that active fund managers are unable to generate a positive *alpha*, but it does not imply that active funds follow similar strategies to those of passive funds and are acting as closet index trackers. In their study on mutual funds, Friend *et al*. (1970) found that there is a negative correlation between fund performance and management expense measure. Jensen (1968), on the other hand, similarly raised a question regarding the attractiveness of active fund management, as he showed that such managed funds have clearly underperformed indexed funds that follow a simple buy-and-hold passive policy. Moreover, John and Donald (1974) examined the relationship between the stated fund objectives against the risks-return attributes of the funds and concluded that on an average, the fund managers appeared to keep their portfolios within the stated risk. Thus, mutual funds on aggregate offer superior returns, but such returns are generally offset by expenses and load charges (Ippolito, 1989).

In providing further evidence, Barua *et al.* (1991) evaluated the performance of the well-known Master Share fund during the period 1987 to 1991 using Sharpe, Jensen and Treynor measures and concluded that the fund performed better than the market, but not so well when compared to the Capital Market Line. In addition, Sethu (1999) examined 18 open-ended growth schemes during 1985-1999 and found that the majority of the funds showed negative returns and no fund exhibited any ability to time the market throughout the period. Moreover, Gupta (2000) examined the investment performance of Indian mutual funds using weekly NAV data and found that the schemes showed mixed performance during 1994-1999.

Mishra and Mahmud (2002) measured mutual fund performance using lower partial moment. In this study, measures of evaluating portfolio performance based on lower partial moment are developed. Risk from the lower partial moment is measured by taking into account only those states in which return is below a pre-specified 'target rate' such as a risk-free rate. In a similar line, Fernandes (2003) evaluated index fund implementation in India, in which tracking error of index funds in India is measured. The consistency and level of tracking errors obtained by some well-run index funds suggests that it is possible to attain low levels of tracking error under Indian conditions.

At the same time, there seem to be periods where certain index funds appear to depart from the discipline of indexation. For example, Pendaraki *et al*. (2005) studied the construction of mutual fund portfolios by developing a multi-criteria methodology to apply to the Greek market of equity mutual funds. The methodology employed was based on a combination of discrete and continuous multi-criteria decision aid methods for mutual fund selection and composition. The UTilités Additives DIScriminates (UTADIS) multi-criteria decision aid method was employed in order to develop mutual fund performance models. Finally, a goal programming model was utilised to determine the correct proportion of selected mutual funds to include in the final portfolios, This model supports and allows the decision maker in combining an efficient portfolio that satisfies the spectrum of investment preferences. Zakri (2005) matched a sample of socially-responsible stock mutual funds to randomly selected conventional funds of similar net assets to investigate differences in the characteristics of assets held, degree of portfolio diversification and any variable effects of diversification on investment performance. The study found that socially-responsible funds do not differ significantly from conventional funds in regard to any of these attributes. Moreover, the effect of diversification on investment performance is not observed to be different between the two groups and both groups underperformed the Domini 400 Social Index and S&P 500 during the study period.

Although emerging markets such as India have attracted the attention of investors from all over the world, they have remained devoid of much systematic research, especially in the area of mutual funds. In an effort to plug this gap, a study by Gupta and Aggarwal (2007) sought to check the performance of mutual funds' in India. In this regard, the quarterly performance returns of all the equity-diversified mutual funds

during the period from January 2002 to December 2006 was tested. Analysis was carried out using the CAPM and the Fama-French Model. Amidst contrasting findings from the application of the two models, the study calls for further research and insights into the interplay between the performance determinant factor portfolios and their effect on mutual fund returns. Since its development and the deregulation of the economy in 1992, the Indian Capital Market has come a long way with many ups and downs. On the other hand, we can see on corporate governance and reporting improvements through structural changes in both primary and secondary markets since a 1992 stock market scandal.

Mutual funds, hence, are key contributors to the globalisation of financial markets and one of the main sources of capital flows in to the emerging economies, and also they have increasingly becoming important in the rest of the world as well. This study, hence, aims to explore and analyse the IMFs by considering their particularities.

1.2. AIMS, OBJECTIVES AND RESEARCH QUESTIONS OF THE STUDY

This research aims to explore, analyse and measure the performance of global Islamic mutual funds through an econometric analysis. Specifically, this study aims to conduct an empirical comparison between the performance of Islamic, ethical and conventional mutual funds using market indexes as benchmarks. In doing so, peculiarities of the data are taken into account, such as the 'Ramadan Effect' and the impact of oil prices. In other words, this study focuses on a test to isolate and analyse any 'Ramadan Effect' and utilises another comparison/or causality test between Islamic mutual funds and oil prices in the short/long run.

In order to successfully fulfil the aim of the study, the following objectives are developed:

(i) to develop an advance understanding of knowledge in relation to mutual funds and their performances;

(ii) to conduct a literature survey on the models used in analysing the performance of mutual funds;

(iii) to report the results of the earlier empirical studies conducted on mutual funds;

(iv) to develop an advanced understanding of the distinguishing factors of Islamic mutual funds;

(v) to develop a methodological model to measure the performance of Islamic mutual funds;

(vi) To conduct an econometrics time series based study to analyse the data collected for global Islamic mutual funds;

(vii) To interpret the results to give further meaning to the findings.

In responding to the aims and objectives of the study, the work is constructed to critically analyse and answer the following research questions:

(i) How have Islamic mutual funds performed over the past 10 years?

(ii) What impact, if any, does the month of Ramadan have on the performance of Islamic mutual funds?

(iii) Are there any significant differences between the respective performances of Islamic, ethical and conventional mutual funds?

(iv) Are the prices of Islamic mutual funds correlated with the oil prices over the short/long term?

1.3. MOTIVATION AND SIGNIFICANCE OF THE STUDY

Despite the growth of Islamic-complaint investment and the continuing interest in the Islamic banking and finance industry worldwide, academic literature on Islamic fund management and performance remains limited. Using the results of the earlier empirical studies conducted on mutual funds, the study helps to distinguish the factors determining the performance of Islamic mutual funds and develop a methodological model to measure the performance of Islamic mutual funds. The findings of the study may add to the body of literature in comparing and measuring the factors of the performance of ethical and conventional funds, but also it provides original empirical findings, which should be considered as novel contribution to the literature.

This study makes an important contribution to the existing literature by clearly helping to enrich the quality of research on Islamic funds and thus paves the way for future research in relation to mutual funds and their performance. The results of the study suggest that Islamic fund managers should identify their performance and develop future strategies for the funds under their management. In addition, future investors seeking to allocate their assets in Islamic mutual funds will have a general historical idea of the performance of Islamic mutual funds. The findings of the study can further inform the decision making process of regulators and policy makers alike by contributing new knowledge offering a more comprehensive understanding of the Islamic mutual fund industry.

1.4. RESEARCH METHODOLOGY

The present study conducts econometrics time series based research to analyse the data collected for global Islamic mutual funds. This study applies a comparison between the Islamic equity fund performance versus ethical equity fund performance, conventional equity fund performance, Dow Jones Islamic Market Index (DJIMI), S&P 500, FTSE4Good Global Index, Morgan Stanley Capital International All Country **(**MSCI AC) World Index and Crude Oil prices.

The dataset consists of monthly net asset value (NAV) per unit prices of 52 Islamic equity funds, 63 ethical equity funds and 100 conventional equity funds. The data was obtained from a Bloomberg terminal at the National Investment Company (NIC) in Kuwait. This sample was screened from a larger sample so as to only include Islamic funds that mainly invest in equity. The resultant sample for the Islamic equity funds represents nearly half of the Islamic equity funds in existence in the world that has been launched prior to 2004.

This study examines the monthly data of equity funds domiciled and operated globally from January 2004 to December 2009. The data includes monthly net asset value (NAV), management fees, and the prices of the Dow Jones Islamic market index (DJIMI), S&P 500 Index, FTSE4Good Global Index, MSCI AC World Index and oil prices. A weighted and equally weighted price of all mutual funds in each portfolio (Islamic, ethical and conventional) is calculated to test the comparison.

The statistical techniques that are used in this study include: (i) the augmented Dickey-Fuller (*ADF*) test as well as the Phillips-Perron (*PP*) test; (ii) Granger causality; (iii) cointegration, and (iv) the Generalized Method of Moments Regression. On the other hand, to check if there is a relationship in the long run between the variables, the Johansen's co-integration test employs two likelihood ratio (*LR*) test statistics: the maximal Eigen value (λ-*max*) and trace (*Tr*) under the assumption that there is a linear deterministic trend in the data, no trend in value at risk (*VAR*). The Granger causality test is used to check if there is a short/long term relationship between the variables.

1.5. OVERVIEW OF THE THESIS

Chapter 1, being introduction chapter, presents the general introduction and background of this these. The same chapter lays down the research questions, discusses the motivation and illustrates the significance of this study. In addition, the chapter provides the research questions, and finally the chapter contains the overview of the thesis. Chapter 2 provides a conceptual literature survey including a definition of mutual funds. in addition, the various types of mutual funds available with their specific characteristics are defined and presented. Moreover, the chapter conducts an in-depth critical evaluation of the literature surrounding non-Islamic mutual funds, ethical mutual funds and conventional mutual funds. Finally, the chapter describes the principles and working mechanisms of the Mutual Funds.

Chapter 3 provides a detail discussion on the principles and natural of Islamic finance. The chapter, furthermore, outlines the role of the mutual fund industry as an investment vehicle in the financial system and reviews the key features of the mutual fund industry distinguishing institutional features of Islamic banking and finance. The chapter also gives a thorough description of various Islamic finance instruments, shows the developments and trends in Islamic banking and finance, and describes Islamic equity funds industry and Islamic mutual funds.

Chapter 4 provides a comprehensive assessment of existing mutual fund performance theories and models, by focusing on the features of the Islamic mutual fund industry. The same chapter also provides a critical review of the existing theoretical and empirical literature that examines the performance of mutual funds. In addition, supplies a description of the Portfolio Theory and the Arbitrage Pricing Theory, Portfolio Theory

and the Efficient Market Hypothesis, portfolio performance measurement, funds' characteristics that potentially influence the performance of the mutual funds.

Chapter 5 presents the research methodology and empirical modelling. The chapter describes data selection and data collection as well as the methodology, which consists of the model and hypotheses, the measurement of the variables, and the statistical techniques. The chapter also supplies empirical findings on..... and illustrates a comparison between Islamic Mutual Funds and other mutual funds.

Using econometric analyses, Chapter 6 discusses in detail,, the performance of Islamic mutual funds. The theme of this chapter is to explore and examine the Ramadan effect on the globally selected Islamic mutual funds. Moreover, the same chapter also intends to locate evidence, if any, for the effect of Ramadan on the performance of Islamic mutual funds operated globally rather than in a Muslim country.

Chapter 7 presents the analysis of the data and the statistical techniques used in this study, including (a) the augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test; (b) Granger causality; (c) co-integration, and (d) the Generalized Method of Moments (GMM) Regression. The same chapter provides the results and discussion of this study, which show that oil price does not cause the Islamic mutual funds' performance, while the Islamic mutual funds' performance causes oil prices; there is, however, a long-term relationship between the Islamic mutual fund and oil prices.

Chapter 9 summarises and concludes the entire thesis, discusses its possible implications and offers recommendations relative to the findings of the study.

CHAPTER 2

SURVEYING MUTUAL AND ETHICAL FUNDS: CONCEPTUAL DEFINITIONS, PRINCIPLES, AND WORKING MECHANISM

2.1. INTRODUCTION

This chapter presents a literature survey on the aspects of mutual funds with the aim of critically reviewing a range of opinions put forward in the existing body of knowledge. A definition of mutual funds is presented, along with the various types of mutual funds and their specific characteristics. This chapter concludes with an additional critique of non-Islamic mutual funds, ethical mutual funds, and conventional mutual funds.

2.2. THE DEFINITION OF MUTUAL FUNDS

Mahoney (2004) refers to mutual funds as 'investment vehicles' in financial markets, which invest large sums of cash for individual investors or investment companies. Mahoney (2004) further stated that these funds can invest in certain items depending on their objectives. For example, mutual funds can invest in bond, local and international equity as well as real estate. In addition, depending on the contributed amount, investors can own a proportion of the fund. Units, such as shares of the fund issued by the mutual funds, have the flexibility of being repurchased or being redeemed at a net asset value that is determined by the fund's manager and the fund's custodian. Bodie *et al*. (2005) maintain that this value is estimated by subtracting the liabilities from the assets and dividing the result by the outstanding number of shares/units.

Gremillion (2005) stated that mutual funds can be classed into two categories: open-ended mutual funds and closed-ended mutual funds. On the one hand, the open-ended funds can have a variable number of units, which depends on their existing shareholders. With these funds, new shares are issued when new investors enter the fund after the initial offering period. Closed-ended mutual funds, on the other hand, are closed to new investors, and the only time that they can be open to new investors is when an existing investor decides to exit by selling their funds or shares. Pozen (2002) maintains that closed-ended mutual funds have certain specific traits of their own such as a fixed number of shares, a defined maturity date and the fact that they are traded in the same way as common stocks on organised exchanges.

In addition, there are various costs and expenses associated with mutual funds. Examples for these include front-end loaded fees commonly known as 'subscription fees', back-end loaded fees commonly known as 'redemption fees', as well as the general costs of administering and managing the fund which are calculated annually after deducting the liabilities from the total assets and paid semi-annually, quarterly or monthly. Load fees and expenses can serve to reduce the size of the invested capital in the form of commission or sale charges. Front-end load fees are paid, when an investor enters into a mutual fund, for the purpose of selling agent fees and/or brokerage services. In contrast, when an investor liquidates, back-end load fees are paid at redemption. Levy and Post (2005) and Bodie *et al.* (2005) maintain that operating management expenses are often administrative or advisory expenses on an annual basis. The specific fees that investors pay are largely dependent on the type of fund and measured on basis points. A basis point is described as one-hundredth of one % (0.01). Bogle (2005) maintains that a fee of around 100 basis points or even more per year is carried by most mutual funds, which has led to the regulatory bodies enforcing stricter disclosure requirements on funds, particularly those funds with higher fees. To this end, Karceski *et al*. (2004) state that the funds that have lower fees, *i.e.* commissions, have lower turnover but also a lower performance, whereas mutual funds that have higher fees can exhibit higher performance.

Christoffersen *et al.* (2006) maintain that there are two investment methods available with mutual funds. Investment can take place either through a large sum of money or through a regular contribution. The latter investment method, the regular contribution to a fund, can happen when an automatic transfer of money is in place from regular income such as a monthly salary payment. It should be stressed that those who invest in funds may have different objectives for doing so. For instance, some people make such investments for retirement purposes, whereas others may decide to do so in an effort to save money to enable them to pay for their future educational plans, according to Russell (2007).

Mutual funds can be best described as a company with investments in a wide ranging portfolio of securities. It is the owners or other shareholders who buy the shares of a mutual fund. Through this investment and purchase, or from the money obtained, a mutual fund manager will then have the required capital to buy securities like stocks

and bonds depends on the nature o the type of fund. There are two ways through which a mutual fund can make money as far as 'securities' are concerned: one is through the interest accumulated on the security, and the other is through an increase in the value of the fund or the security. It should also be noted that the reverse of this can happen too, where a fund loses money or experiences a reduction in its value.

The following are traditional and distinguishing aspects of mutual funds:

(i) Mutual fund shares can be purchased from the fund manager or brokerage firm by investors

(ii) Net asset value (NAV) is the price after deducting all the liabilities divided by the number of outstanding units. Also, the price paid by investors for the existing mutual fund shares. The investors are also required to pay for any shareholder fees imposed by the fund itself during a fund purchase. An example of this in practice is through the front end loaded fees.

(iii) The mutual fund shares bought by investors have the flexibility to be sold back to the fund or an acting broker. In other words, these shares are "redeemable".

(iv) In order to be able to accommodate new investors, these funds create and sell new shares. Unlike close-ended funds where they only can accommodate new investors by replacing an existing investor.

2.3. THE ADVANTAGES OF MUTUAL FUNDS

As far as mutual funds are concerned, there are a range of advantages associated with both the individual investors and the overall economy. Individual investors with limited time and expertise about financial markets can benefit greatly from mutual funds in terms of having access to invaluable information and professional knowledge. There is also a clear diversification benefit for those investors who have small or modest amounts, which they want to invest, as the transactional cost of accessing research on the markets and of constructing a diverse portfolio can be burdensome for them. Russell (2007) maintains that, depending on the market conditions and trading skills, an investment manager makes the decision as to which security to buy or sell. This way

the investor can also select, from a variety of available funds, their desired one to invest in, bearing in mind both the potential risk and profit.

The fact that these funds can hold a diverse range of securities from a wide range of issuers is one of their great assets. With this more comprehensive diversification, therefore, the risk of a serious loss is significantly reduced in the case of a specific problem occurring in a specific sector or company.

Another advantage that can be offered for individual investors allocating capital to mutual funds is the increased liquidity. To this end, Obaidullah (2005) maintains that the fact that shares in mutual funds can easily be traded, *i.e.* bought or sold, is a bonus, as within a matter of days money can be accessed. This factor may be dependent on the fund policy as well.

Mutual funds can be looked on as an industry that can evolve. The evolution in this case, however, can benefit the overall economy or economic structure by improving liquidity, or injecting capital, in the financial markets. With an increase in liquidity, the size and extent of trade naturally goes up, too. As a result, the outcome of this would be the enhancement of business and trade opportunities for all market participants along with the ultimate capital market improvement and economic well-being.

Due to the transactional cost efficiency as well as the low risk factors associated with mutual funds, a large number of investors use these funds to access financial markets. This in itself is an advantage as a great deal of information, experience and expertise is needed for direct investment in financial markets. By keeping the costs down, mutual funds put the individual investor at an advantage as well as benefiting the economy at large. Fortune (1997, 1998) found that mutual funds aid the rising of securities markets by providing participation which, in turn, employs and spreads the invested capital across a wider range of securities to better achieve goals of financial stability, provision for education and creation of retirement plans. This is the reason behind the fact that professionally managed funds are a viable alternative to investing directly in securities. Many countries in the world need to be aware of the necessity to promote private savings to match their retirement needs in cases where the country as a whole faces the prospect of an ageing population.

Another advantage of mutual funds is that, if any incident or circumstances negatively affect the market, the professional management of mutual funds will serve to keep the financial market stabilised by not irrationally redeeming more fund units than a certain percentage, thus not harming the financial market with more reduction in value by selling or offering more equity to cover their investors' redemption enquiries.

The history of the mutual fund industry in the world, with a particular focus on the contexts of the US and the UK, is presented later in order to offer an insight into the development of the fund industry.

2.4. HISTORY AND CURRENT TREND IN THE MUTUAL FUNDS INDUSTRY

The mutual fund industry was started in Britain in 1868 by the creation of the first Foreign and Colonial Government Trust. The plan for this fund and its structural creation was to invest in government debt securities. A favourable environment for mutual funds was created and provided by the then British laws so that by 1875 there were 18 mutual funds in place, which were similar to the Foreign and Colonial Government Trust, whose assets exceeded £6.5 million. For example, the aim of the Scottish American Investment Trust of 1873 was to invest in the US, having income return as its main objective. What is more, the New York Stock Trust of 1889 established the first fund in the US, which was immediately followed by the Boston Personal Property Trust in 1893, as well as the Railway and Light Securities Company in 1904. It should also be mentioned that the entirety of these funds were closed-ended, according to Bogle (2005).

The American stock market enjoyed a bull period during the 1920s, which gave rise to a large number of investments that greatly benefited the mutual fund diversification and professional management, as well as economies of scale. However, the market was severely hit by a major crash known as 'Black Thursday' on 24th October 1929. In those days, the open-ended mutual funds were not a popular instruments among the investment community when compared to closed-ended funds. The number of open-ended mutual funds with assets worth $140 million at the time of the crash stood at only 19, with the largest one being the 1924 Massachusetts Investors Trust (MIT). When the fund was first launched, its value was only measured at $392,000, comprising 200

investors with their investments held within narrow parameters of certain sectors such as industrial, railroad, utilities, and insurance.

In the aftermath of the 1929 'Black Thursday' crash, there was a decline in the growth of the mutual fund industry in the US. This, therefore, led to the US Congress passing the Securities Act of 1933, which required listed companies to be registered. This was immediately followed by the government passing another act known as the 1934 Security Exchange Commission (SEC) Act. This second act covered the regulation of the markets as well as the supervision by the SEC of the financial markets' activities. In subsequent years, the SEC issued legislation called the Investment Company Act 1940 with regard to mutual funds. Bogle (2005) observed that this legislation mandatorily required mutual funds to provide a prospectus statement to their potential investors for the first time. The period between 1940 and 1950 saw a slow but steady growth in the US mutual fund industry. This trend remained steady until 1951, by which time the total number of mutual funds was over 100, with the number of shareholders' accounts reaching over one million (Investment Company Institute [ICI], 2006). The introduction of Individual Retirement Account (IRA) provisions was one of the main contributors to mutual fund growth. Woodard (2006) stated that the IRA provisions made it possible for individuals, including those who were already in corporate pension plans, to contribute $2,000 a year to mutual fund investments within their retirement accounts. As a matter of fact, retirement accounts *en masse* in the US account for approximately 40 % of mutual fund industry holdings today (ICI, 2006). Moreover, open-ended mutual funds have survived to become the major model of mutual fund organisation, which is an indicative of a crucial innovation that has contributed to the sector's present success.

The British mutual fund industry also enjoyed a modest evolution between the 1920s and the 1950s, issuing its own legislation in the 1930s to limit the creation or placement of new mutual funds. Even with these restrictions, there were 15 managing houses operating 98 funds with £83 million of assets in the 1930s. Boninger *et al.* (1995) stated that the low level of failure amongst existing mutual funds plus the survival of those funds' issued prior to the war was testimony to the strength of the fund industry.

In an effort to encourage investment in a favourable economic climate, the British government introduced certain legislative changes, with the result that the mutual fund

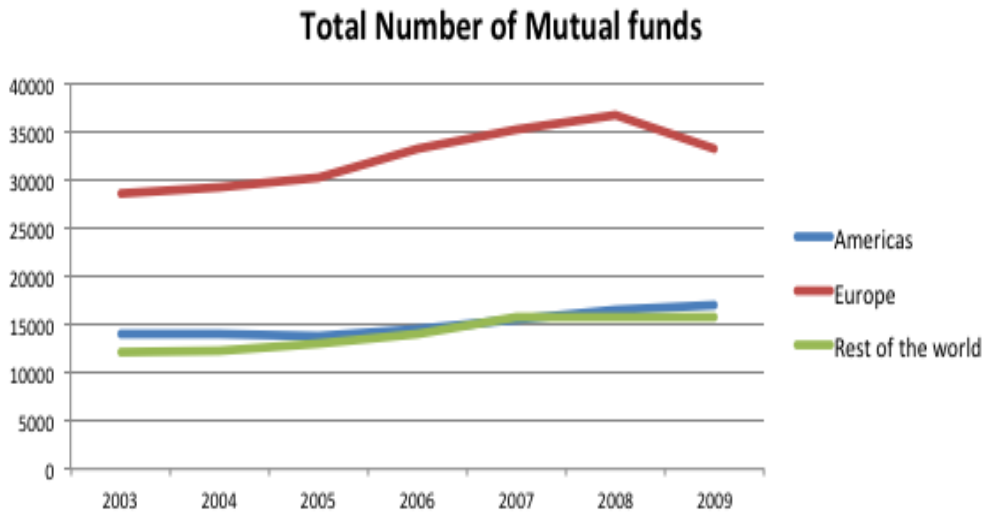
industry in the UK began to make a real impact amongst the general public in the 1960s. Boninger *et al.* (1995) claims that the total assets in the mutual fund industry were estimated at £835 million, with 150 mutual funds under management within the space of seven years from the start of the decade, *i.e.* by 1967. This growth, however, was striking in that it occurred not at the best possible time, but in the midst of adverse market conditions. In subsequent years this trend continued, for instance, a drop of more than 50 % in the share index (the FTSE) caused by the 1974 'oil shock' was even worse than the negative effects of the 1929 'Black Thursday' in the US. This was interpreted by investors at the time as a sign of the volatility of mutual funds, which could swing in both directions. Matters became even more unfavourable with the resulting inflation that gripped the world in 1975. The macro economic climate changed at this point, when, in 1976, markets again took a positive step forward, helping the FTSE index to improve by 180 %, with the value of the mutual fund industry peaking once more at £2.5 billion (Financial Service Authority [FSA], 2007).

The growth of the British mutual fund industry continued into the 1980s and 1990s. The UCITS5 Directive, a piece of European Union (EU) legislation which was introduced in October 1989, made possible or facilitated the cross-marketing of collective investment funds in the European context. This gesture, in itself, was a positive move for the strength of the mutual fund industry. Even though the sold funds were referred to as UCITS, the passed act was still in support of the growth of the mutual fund industry. This was followed by the emergence of another strong bull market in the 1990s and particularly in 1993, which worked to enhance the value of the mutual fund industry from £36 billion in 1987 to £99.9 billion by January 1994. Boninger *et al.* (1995) stated that this led to a surge in the number of management houses from 121 in 1987 to 162 in 1994, which was equivalent to 1,559 mutual funds.

In the 1980s and 1990s, the mutual fund industry made its powerful presence known within the global financial systems. A number of countries, including certain Middle Eastern countries, China, India and Latin America, contributed to the overall progressive trend through actively developing their own mutual fund industries. Goetzmann *et al.* (2002) maintain that the mutual fund industry was greatly assisted by the innovation factor in product development such as by the creation of UCITS in the EU. This assistance itself came about through the creation of new distribution channels

for public access and wider availability in an effort to improve knowledge and expertise in the mutual fund industry. Moreover, the mutual fund industry has seen an unprecedented growth in the global markets recently. An estimated value of more than $10 trillion is observed for the US mutual fund industry alone, which is approximately 50 % of the total size of the global mutual fund industry (ICI, 2010).

Figure 2.1. Number of Mutual Funds between 2003 and 2010



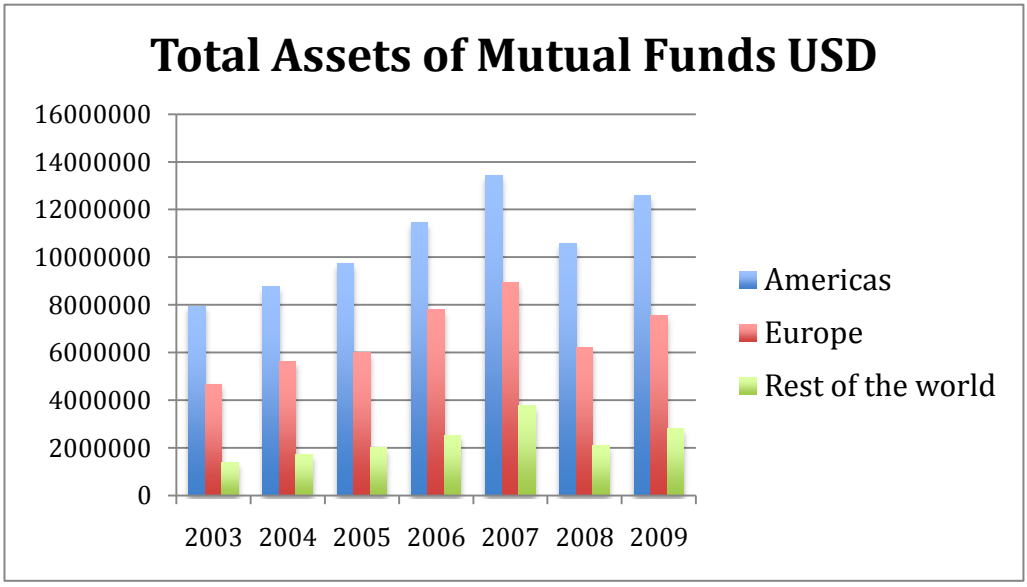
Source: European Fund and Asset Management Association (EFAMA) p. 23 and Investment Company Institute (ICI) 2010, p. 183

The number of mutual funds in the USA, Europe, and rest of the world is shown in Figure 2.1. As can be seen, Europe has the greatest number of mutual funds, which is immediately followed by the USA and the rest of the world. The total number of mutual funds in the world in 2007 is estimated at 62,522, a figure which has risen from 51,574 in 2000.

The growth trend in total assets in millions of US dollars in the period between 2000 and 2007 is depicted in Figure 2.2. These total assets show the levels of market capitalisation of mutual funds. In this figure, America is shown to have the greatest mutual fund size of assets, which is followed by Europe and then the rest of the world. The American mutual fund industry size is estimated to stand at approximately $12 trillion in 2007, with the overall global mutual fund industry size increasing from $11.8

trillion in 2000 to $22.7 trillion in 2007. This can be translated into a growth of 92% during an eight-year period.

Figure 2.2. Mutual Funds Total Assets (Millions of US Dollars)



Source: European Fund and Asset Management Association (EFAMA) p. 23 and Investment Company Institute (ICI) 2010, p. 182

2.5. TYPES OF MUTUAL FUNDS

Depending on the risk and reward relationship, investment companies offer investors a range of mutual funds with unique and specific features. The two main sub-divisions of mutual funds are the open-ended funds, in which there is no limit on the number of shares, and the closed-ended funds that can accommodate a fixed number of shares. As mentioned earlier however, whilst a wide variety of funds exist in the market, for the purposes of this study only the major types will be discussed below.

2.5.1. Money Market Funds

Low in risk and return, money market funds are investments that have stable net asset value prices, which mean low potential losses for investors. The Certificate of Deposit (CD) and T-Bill are examples of holdings within these funds. Interest rates are generally reflected in the commensurate level of dividends delivered by money market funds. It can be said that a money market fund is usually considered as an income fund that offers investors a smooth income during a life span. Therefore, Reilly and Brown

(2003) claim that investing in a money market fund can be compared with investing in a savings account that is not guaranteed, although allocation is generally in high-quality short-term investments in these funds. According to ICI (2006), money market funds are a major type of funds which are estimated to account for 30% of the entirety of the mutual fund industry. Furthermore, money market funds are the easiest type of mutual funds that investors can subscribe to and offer excellent liquidity through units being redeemable on a daily basis.

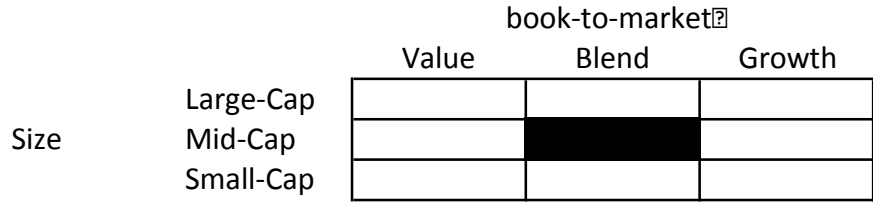
2.5.2. Equity Funds

Equity funds represent the most common type of fund in the marketplace, making up 50% of the total assets of funds in the US. These funds are mainly considered as diverse investment vehicles, whose main objective is to invest in a suitable basket of listed common equity stocks. These funds offer the investors the benefits of diversification as well as professional management and adopt a range of underlying mandates such as aggressive growth, balanced growth, income or value. A selection of these funds also have specialised focus on geographically local investment within specific sectors like international stocks, health or power.

Common equity funds can take a variety of styles such as firm size, which can include small-cap, mid-cap, and large-capitalisation stock. Through multiplying the stock price by the number of shares outstanding, market capitalisation can be achieved. This is how the size of the stock can usually be measured. A company market capitalisation greater than £5 billion is traditionally considered a large capitalisation stock, and a value less than £1 billion is usually considered a small capitalisation stock. However, it is important to note that what 'large-cap' and 'small-cap' may mean can vary in nature depending on the specific market in which they are being considered (MorningStar Fact Sheet, 2004).

Funds can also target stocks that have different book-to-market ratios, which is simply the book price of a listed stock divided by its market price. A 'value stock' is a stock with a low book-to-market ratio, which is often traded below the book value with a resultant high dividend yield. A 'growth stock', on the other hand, traditionally has a high book-to-market ratio with more volatile prices and lower dividend payout ratios (MorningStar Fact Sheet, 2004). Such stock classification is illustrated in Figure 2.3.

Figure 2.3. MorningStar™ Stock Classification



Sourse: MorningStar Fact Sheet (2004) p. 2.

Several data examples in the forms of graphs and statistics have been obtained from MorningStar™ which is a market leader in providing mutual fund ratings. This company was set up in 1984 with the aim of providing fund investors with high quality information, analysis, and research on the mutual fund industry. The company evaluates and rates mutual funds based on their stock holdings and performance. These ratings are on a scale of one to five stars. Meier and Schaumburg (2004) state that within the same population of fund investment style, risk-adjusted return is used to evaluate the performance of a fund relative to peers. The top performing 10% of funds (referred to as the top decile) get five stars, the next 22.5% four stars, the middle 35% three stars, the next 22.5% two stars, and the bottom 10% one star. Funds that have been in existence for less than three years are not usually awarded a rating nor included in the rankings accordingly until sufficient time has passed for a meaningful assessment of performance.

2.5.3. Index Funds

These funds seek to accurately replicate the performance of a market index like the FTSE 100 or the S&P's 500 through asset allocation matching of the index. Such funds buy shares in securities in line with their weighted proportion to the index. Investment in these funds is termed 'passive investment' due to the goal being to simply accurately track the market movements rather than seeking to outperform. Managing passive funds requires a buy-and-hold strategy, where there is an infrequent occurrence of the rebalancing or adjusting of the holdings of the fund. In such a context, according to Gruber (1996), the aim is to obtain what is called beta return for investors. On the other hand, the management of an active fund for the purposes of attracting higher returns, *i.e.* alpha plus beta, would need to change the allocation of a fund on a constant basis. ICI

(2006) claimed that the active funds' market share, compared to that of passive funds, is approximately 85 per

Passively-managed index funds are not necessarily invested in equity indices. Bond and real estate indices that track the movement of bond and real estate prices have been recently launched, as well as commodity focused funds. Bodie *et al.* (2005) maintained that index funds are often associated with low trading costs when compared with other funds because of their limited transactions, which applies regardless of their underlying strategy, asset or index.

2.5.4. Exchange-Traded Funds (ETFs)

Traditional mutual funds or index funds are priced or re-valued on a daily basis after market closing, and all transactions are executed at that price. This fact is regarded as one of the issues to be addressed to improve the functionality of these funds. To resolve this issue, the American Stock Exchange (AMEX) in 1993 created an index fund tied to the performance of the S&P 500. This index fund, and other funds like it, are known as an Exchange Traded Fund (ETF). The advantage of this type of fund is that it can be traded uninterruptedly with an updated price during a trading day. Therefore, it can be said that the interactive nature of the intraday price during trading hours is a key difference between an index fund and an ETF. Reilly and Brown (2003) maintain that the concept of an ETF has been tried in a variety of regional markets and that it has shown substantial growth.

2.5.5. Fund of Funds

Rather than investing directly in stocks or bonds, a structured investment company can be formed purely for the purpose of investing in other funds. Such a fund will commonly be referred to as a 'fund of funds' or FOF, which have the potential to offer even greater diversification than an individual fund. A small management fee is chargeable with FOF which, as it is regarded as an asset allocation service, is smaller than that of an original fund and moves to combat the fact that there is inherently an additional layer of fees being built into the investment process. The fees to be incurred are usually disclosed in the fund's annual report or statement of additional information on the underlying fund level; however, they are not reflected in the statement of

operations. The evaluation of an FOF is based on two factors; firstly, the overall fund level expense and, secondly, the underlying fund expense (Euromoney, 2006).

2.5.6. Hedge Funds

There are both similarities and differences between a hedge fund and a normal mutual fund. In terms of similarity, they both pool the invested capital. In terms of differences, however, according to Anson (2005), hedge funds conduct significant levels of trade in complex instruments, investment strategies and financing techniques such as financial derivatives, security short selling, and leveraging respectively. Moreover, hedge funds are private investments, which at times are exclusively open to investment by 'high net worth' wealthy and institutional investors and are often unregulated. However, whilst the funds themselves may be unregulated, some of these fund managers may need to be registered with local governing bodies prior to conducting activity.

It is not uncommon for hedge funds to have a particularly small number of clients, *i.e.* no more than a hundred, and they usually attract wealthy investors who seek sophisticated financial products to obtain high or alpha returns. Hedge funds are also often not required to be registered with fund industries, which govern bodies even in developed markets like those of the UK or US. Larger hedge funds, however, are usually required to register with regulatory bodies, as they are in control of a larger liquidity. Moreover, advertising is a feature, which is not permitted for hedge funds. Another characteristic of hedge funds, according to Strachman (2005), is that they use financial derivatives such as stock options, forwards and future contracts in order to hedge their positions. Unlike typical mutual funds, to stay ahead of the competition with traditional mutual funds (FSA, 2007).

Hedge funds may implement a lock-up period as far as the investors are concerned. This means that an investor would not be permitted to cash out shares or liquidate their investments until a set period of time has lapsed. Depending on the hedge fund policy, liquidity therefore varies with redemption varying from monthly to annually. Ultimately, mutual funds are typically more liquid when compared to hedge funds because they can offer daily or weekly redemption. Black (2004) stated that mutual funds and hedge funds may be compared and contrasted with each other; however, their

major difference is that mutual funds allow small investors to gain exposure to a diverse portfolio, whereas hedge funds typically deal with larger clients and operate

2.5.7. Bond Funds

Bond funds by their nature funds typically invest exclusively in the fixed-income sectors. Specialised bond funds typically invest in corporate bonds, Treasury bonds, mortgage-backed securities and municipal bonds. Bonds are spread across various credit risks or ratings, which vary from very safe to high-yield junk bonds. In this context, as can be expected, the greater the risk, the greater the (investment) returns. For instance, a bond fund that invests in high-yield or junk bonds is usually expected to be exposed to greater risk than a fund investing in higher grade bonds, which means investors naturally demand and expect greater returns for the extra risk being assumed. Bodie *et al*. (2005) observe that the term structure on bonds is not uniform, due to the length of their maturities, as some are short-term and some others long-term, stretching 30 years to maturity.

2.5.8. Real Estate Investment Trust Funds

Real Estate Investment Trust funds are also known as REITs. Such funds strongly resemble closed-ended funds and are primarily structured as either equity REIT's or mortgage REIT's.

Equity REITs invest directly in real estate with the aim of benefiting from the appreciation in real estate prices. These funds are most commonly used as an income generator due to the requirements to distribute the vast majority of rental income to acquire the inherent tax advantages of the REIT structure. Examples of the use of these funds can be for diverse indirect investment in commercial and residential businesses such as apartment buildings, shopping centres, office buildings, hotels, and warehouses, according to Hardy (1995). The second type of REIT available are referred to as mortgage REITs and offer diverse indirect exposure to mortgages and money lending. Kuhn (1996) proposed that REITs are usually established by banks, insurance or mortgage companies, the enhanced tax efficiency is usually the driving factor although the fees will obviously serve to create further motivation. Reilly and Brown (2003) state that, because of the presence of a special fiscal tax treatment, a REIT fund typically has a high dividend payout ratio.

2.6. EMPIRICAL STUDIES ON MUTUAL FUNDS

Chen *et al.* (2000; as cited in Kosowski *et al*., 2006) found that growth-oriented funds have historically exhibited skills in identifying large capitalisation stocks that are substantially underpriced. Kosowski *et al.* (2006), in their study, aimed at determining whether the superior consistent performance of a few mutual funds can be a matter of chance, by discounting their results for the possibility of luck. They tested whether the estimated alphas of outperforming mutual fund managers are solely caused by luck or are actually indicative of superior stock picking skills. Their findings indicate that these alphas cannot be solely explained by sampling variability and, therefore, outperforming fund managers must have some underlying stock picking ability. This is only found to be true for superior performing growth fund managers however, as the findings indicate that income-oriented fund managers show little if any stock picking ability (Kosowski *et al*., 2006). This shows that active portfolio management in its truest sense continues to have the potential to outperform the benchmark, but very few fund managers are able to fulfil this objective over the longer term. Even though few active fund managers are able to offer superior returns to their investors, they nevertheless continuously look for opportunities and market inefficiencies to take advantage of, unlike passive portfolio managers.

Busse & Irvine (2006) found that investors who select funds based on prior performance are in a better position when intending to improve the future performance of their investments; hence, attaching a higher relative weighting to short term past performance can lead to superior investment performance. They also found that, by using Bayesian alpha estimates, a fund can improve the predictability of its performance when compared to other frequently used estimates that assume constant parameters. Therefore, the recognition that mutual fund holdings have an inherent dynamic nature can improve the predictability of asset price movements and result in a greater potential for positive alpha from active management (Busse & Irvine 2006). This highlights that investors tend to focus on past performance after taking into account the associated expenses.

Malkiel (1995) argues that literature indicating consistent superior performance by some mutual fund managers has failed to take into account the survivorship bias. For

his study, Malkiel (1995) used a complete dataset of all mutual funds between 1971 and 1991. The study found a significant survivorship bias effect when estimating average mutual fund performance, which indicates that, after taking into account the survivorship bias, mutual funds tend to underperform the market benchmark both before and after also taking the management fees into account. They additionally conclude that it is in the best interest of investors to follow a passive indexing strategy as opposed to an active management strategy for their portfolios (Malkiel, 1995). This provides some evidence in favour of the existence of active portfolio funds that might actually act as closet index funds. However, only further research on the subject can help prove whether the behaviour of active fund managers has become similar to that of passive portfolio managers.

Elton *et al.* (1996:1089) states that "Mutual fund attrition can cause problems for a researcher because funds that disappear tend to do so due to poor performance." They also study the importance of survivorship bias when predicting the existence of portfolio alphas and suggest that most prior studies of mutual fund performance are subject to survivorship bias. Therefore, prior studies overstate the estimates of performance. Blake *et al*., (1993; as cited in Elton *et al*., 1996) provide an estimate suggesting that survivorship bias raises returns by 27 basis points per annum for bond funds. Elton *et al.* (1996), therefore, suggest the estimation of a measure that can be used to adjust the results obtained by prior studies for survivorship bias. This is done through tracking every fund that existed in the beginning of a sample period to the end of the sample period and taking mergers into account.

Chevalier and Ellison (1999; as cited in Baks, *et al*., 2001) found that abnormal returns on mutual funds can be predicted using past returns, past fund inflows and/or manager characteristics. The study also showed the existence of positive alphas net of management expenses, which can prove to be an instrumental consideration in defining the role of active management in the years to come. The fundamental belief of active managers regarding the existence of a possibility of making a positive alpha intrigued them, and the managers of these active funds continuously aimed to identify these opportunities, unlike the passive fund managers (Baks *et al*., 2001).

Gruber (1996) provides one explanation for an increasingly high level of interest in investing in actively-managed mutual funds. He observes that the fact that these funds

are traded at their net asset values (NAV) implies that the management ability is not incorporated into their price. Therefore, investing in mutual funds can offer a positive worth to the investors if management skill actually exists. The predictable performance of open-ended mutual funds due to this lack of pricing in any inherent management skill into their NAV can have significant benefits for investors (Gruber, 1996). Gruber (1996) adjusts his results for survivorship bias and indicates that mutual funds have underperformed a weighted average of indices by 65 basis points a year. Investors still continue to invest in open-ended mutual funds because the performance of these funds is thought to be predictable at some level, and any investors that are aware of this predictability factor tend to benefit from this fact. Gruber (1996) concludes that the stock of money tends to underperform the indexes, as the predictability of returns was recognized to perform better than the appropriate benchmarks. This awareness of the predictability of returns for actively-managed mutual funds provides evidence against the idea of the actively-managed funds becoming closet index investors.

Sorensen *et al.* (1998) highlights the increasing awareness regarding the importance of the decision regarding active or passive equity management for pension plans and trustees. Barry (1997; as cited in Sorensen *et al*., 1998) reported that the percentage of equity funds outperforming the index in the United States decreased over time and fell to below 5% during the first half of 1997. However, the figures for the entire year indicated that about 11% of the mutual funds managed to outperform the S&P 500 index. As few active fund managers are able to statistically display long term outperformance of the market, the number of index fund providers has substantially increased over the period of study from 1977 to 1997. The popularity of passive indices is also driven by their cost effectiveness, high level of liquidity, greater transparency and use of modern technology for trading purposes (Sorensen *et al*., 1998). The idea put forward is to select an investment choice somewhere between the passive and active allocation of funds for the pension funds, based on the level of stock picking skills the fund managers have delivered and the level of risk the fund is able to sustain in the long run.

The relevant academic literature provides conflicting results regarding the ability of mutual fund managers to generate excess returns for their portfolios. Recent studies have utilised a different approach and provided evidence that individual stocks selected

by superior fund managers tend to outperform the markets (Daniel *et al*., 1997; Chen *et al*., 2000). These studies prove the existence of superior performance by skilled active fund managers in the United States. Pinnuck (2003) continues further investigation into the topic and tests the hypothesis as to whether this superior ability of active fund managers results in enhanced performance for out-of-sample data. He conducts a similar study for Australian fund managers from 1990 to 1997, and the result is consistent with prior research. The use of out-of-sample data in this research is proof that these results offer a universal observation, and the analysis of mutual fund managers in the United Kingdom should be sufficient to conclude whether they are following closet indexing strategies. It is also found that the individual trades undertaken by these fund managers outperformed the market and more so for larger trades than for smaller trades. However, the access to superior information does not appear to exist in the case of trades for these managers (Pinnuck, 2003).

Brown *et al.* (1996) observed interesting behaviour among mutual fund managers at the mid-year; the losers tended to increase the risk of their holdings relative to the winners. This was attributed to the lower compensation in terms of cash outflows for the losing portfolios. This asymmetry of cash outflows has also been highlighted by other studies, and the losing funds are considered to be more heavily penalised by lower inflows rather than cash outflows (Sirri & Tufano, 1998). The objective of increasing the level of risk exposure for the mutual fund is to enhance the returns for the following period and to attract a greater probability of receiving higher amounts of cash inflows in order to increase the asset base and the fund managers' incentive fees. Busse (2001) further investigates this issue by using a dataset of daily returns instead of the previously used monthly returns analysis. The use of daily volatility estimates provides a more accurate analysis, and it is suggested that fund managers are not found to adjust their risk exposures in response to past performance; instead the risk exposures change, depending on overall stock market volatility.

Bogle (1994: 235) stated that "Asset allocation decision has accounted for an astonishing 94% of the differences in total returns achieved by institutionally managed pension funds." This statement by itself is in favour of the argument for passive investment or closet indexing strategies. David *et al*. (1999) suggest that the above-mentioned argument is not substantiated by considerable research and empirical

objectivity, arguing that further research and a sensitivity analysis of the results can result in different conclusions. A detailed study, taking into account the sensitivity analysis, was conducted to confirm the results obtained by prior research, and it is again evidenced that pension funds in the United Kingdom could have performed better if they had invested their funds in passive indexes (David *et al*., 1999). The use of active management by the mutual fund managers is referred to as an agency problem: it is considered in the interests of controlling fund managers to manage funds actively in order to maintain their importance. This provides considerable evidence in favour of the argument that active fund managers often turn out to be closet index trackers.

Hill *et al.* (2006) discusses the possibility of generating a positive *alpha* through the use of option strategies by active fund managers. The very existence of a positive alpha in the case of this strategy provides evidence in favour of active management and the ability of certain fund managers to exploit market inefficiencies.

In relation to hedge funds, Amin and Kat (2003) find that, on a stand-alone basis, hedge funds are unable to offer a superior risk-return profile to their investors. The results were obtained after evaluating the return distributions of 77 hedge funds and 13 hedge fund indices using a data set from 1990 to 2000. This lack of consistent outperformance is attributed to inefficiencies existing within the hedge fund structure; however it is worth noting that some of the costs causing these inefficiencies can be diversified away. The study provides evidence that hedge funds, when viewed in a portfolio context, can offer superior returns if held in small proportions along with passive indexed holdings (Amin & Kat, 2003).

Bogle (2005) discusses the events that have taken place in the mutual funds industry over the last six decades and establishes an urgent need to go back to serving the interests of the shareholders instead of the interests of the managers and distributors of mutual funds. He is of the view that active fund management has not benefited the investors in recent decades to the extent that it now needs to be modernised and materially overhauled. Despite this, he remains of the belief that active funds can indeed become attractive once cost efficiencies are created to bring down transactional costs alongside a general reduction in the level of management fees. Also, he notes it is entirely possible to cut the marketing and operating costs for these mutual funds and

thus further lower the performance levels necessary to achieve positive returns for investors.

In search of further evidence in relation to the skills of fund managers, Kacperczyk *et al.* (2005) find that investment ability is evident in fund managers that choose to hold specialised portfolios that are concentrated on a few industries, even after controlling for the risk factors. This has been proved by using various performance measures including the Carhart four-factor measure, the Ferson-Schadt conditional measure, the Daniel-Grinbatt-Titman-Wermers (DGTW) measure, industry-adjusted measures and trade portfolios. The Carhart model adjusts for risk and style factors, while the Ferson-Schadt model is based on conditional performance rather than traditional measures that tend to be unconditional, and the DGTW measure deconstructs the overall returns of funds into a characteristic timing and a measure of average style (Kacperczyk *et al*., 2005). All these measures prove that the mutual fund managers that have outperformed the market usually tend to be materially over-weight certain industries in their portfolios. This is also related to closet index tracking behaviour amongst active fund managers.

The fundamental law of active management is associated with the performance attribution of active fund managers. The fundamental law states that "A portfolio's ratio of expected active return to active risk, the information ratio, is a function of the security return-forecasting skill, implementation efficiency, and breadth of application" (Clarke *et al*., 2005: 70). The notion that performance can be positively attributed to the skills and the number of decisions made by the fund manager implies that active managers are not closet index trackers. The skill of the active investor is judged by his ability to rank stocks based on their forecasted returns that match the actual return profiles, while the breadth of application involves the number of independent active investment decisions taken by the manager during his working lifetime (Clarke *et al*., 2005). Therefore, the information ratio is one measure that can be used to determine whether the active fund manager has superior skills and judge whether he is pursuing a truly active strategy for the given portfolio. Clarke *et al*. (2002) identify reasons that might result in active managers being unable to realise their full potential in terms of superior performance. They suggest that constraints like market capitalisation and

value growth neutrality relative to the benchmark might restrict the active manager's potential.

By estimating a modified version of the Sharpe ratio in a simple continuous time model, Nielsen and Vassalou (2004) take into account the changes in volatility. They add half of the volatility of the fund to the original Sharpe ratio in order to make this adjustment. The new value should be a more reliable estimate of the active fund managers' performance and often leads to a different ranking for the fund managers. This implies that active fund managers can deliver superior performance as they are able to adjust the fractions of the wealth held in the fund and the riskless asset over the passage of time (Nielson & Vassalou, 2004).

Baquero *et al.* (2005) claim that methods of analysing performance persistence are directly affected by the presence of look-ahead bias. This bias can be eliminated by using a weighting procedure that relates fund survival to fund performance. Interestingly, the research finds that look-ahead bias is severe and can largely affect the return analysis of fund managers. This is in contrast to the results obtained by other studies, which largely regard look-ahead bias as insignificant (Horst *et al*., 2001; as cited in Baquero *et al*., 2005). It is also argued that a degree of consistency of superior returns for the mutual fund industry is negatively influenced by the natural tendency of mutual fund investors to shift their investments between funds in search of superior returns. However, since hedge funds usually have a lock-out period which reduces the ease of investors switching funds, hedge funds are therefore perhaps better placed to provide a suitable dataset for analysis of the consistency of alpha over the longer term for actively-managed portfolios (Berk & Green 2004; as cited in Baquero *et al*., 2005).

Del Guercio and Tkac (2002) report the differences, in the flow of capital between mutual funds and pension funds. They find that pension fund managers are punished by the fund investors by withdrawing their funds from pension management and by not shifting these funds towards last year's winners. The pension fund managers need to exhibit a positive Jensen's *alpha* and low tracking error to be able to attract capital to their fund. Therefore, pension fund managers do not have an incentive to increase risk taking when they are poorly performing (Del Guercio & Tkac, 2002).

Bozcuk and Lasfer (2005) study the information content of trades and the ability of this information to analyse the price impact of these trades. They find that the type of investor making a trade and the size of the trade are determining factors of the price impact of the given trade. Large buy and sell orders by fund managers contain strong information content, providing evidence that active fund managers can have a superior ability to predict market returns and they are not closet index trackers (Bozcuk & Lasfer, 2005).

The array of literature available on active fund management does not end the debate regarding whether these funds tend to be closet index trackers or whether there is a certain degree of skill involved in active management of funds. However, there is more recent evidence regarding the ability of fund managers to generate superior returns, and closet index-tracking behaviour cannot be generalised for all or most active index trackers. Further research on this clearly contentious topic must be conducted to reach a more appropriate conclusion regarding the behaviour of active managers in comparison with passive fund managers.

2.7. ETHICAL FUNDS

An important area of mutual funds are ethically funds, which in the recent years have made important inroads the in the financial markets. In the areas of economics and finance, the concept of 'ethics' and placed for ethically led investment has long been a controversial and complex issue, which prioritises ethically acceptable and sustainable development investment areas. For those opposed to ethically led investing, the objective financial motives of maximising benefits in a business context are often regarded as fundamentally inconsistent with the subjective principles of ethics. In other words, they argue that embracing the concept of ethics would necessarily come at an ethical cost. The supporters of ethical investment, however, maintain that adopting ethical values in a business concept renders multi-faceted benefits to several stakeholders. They state that the incorporation of ethics in business, economic and financial decisions not only benefits the organisations but also the general public and the environment.

The other aspect of these benefits concerns the creation of higher transparency and corporate governance demands on ethically-oriented companies which, in itself,

advocates social stability and enhance the overall quality of life across society through ensuring their products and services are provided via an ethically sound process. In the face of its controversial nature and contrasting opinions, ethics today remains an important part of economic processes. Smith (2000) stated that an individual needs to be willing to sacrifice his/her own personal interest for the greater interest of the society, state and universe for the purpose of achieving wisdom and virtuousness. In agreement with this suggestion, Kuran (2006) maintains that social and moral norms and principles exist to promote social stability, which in turn contributes to the enhancement of human civilisation.

In general, there has been widespread support for the adoption of moral norms and ethical values within the available literature. It is acknowledged that the adoption of ethical values can significantly affect an economic agent's decision and decision-making process. As an example, Etzioni (1988; as cited by Lewis & Cullis, 1990) clearly states that 'economics has a moral dimension' to such an extent that ignorance of it by profit-oriented organisations in their economic and financial decisions would be a mistake. This is particularly so in a context where there is a heightened awareness among the contemporary investment population who are becoming more selective of which companies they wish to allocate capital too due to ethics-related issues. This growing expectation of ethical conduct and the associated investment behaviour is reflected in the increasing demand placed on conventional companies to show greater than ever corporate social responsibility and to put in place good corporate governance mechanisms to further respect human rights, support animal rights and uphold environmental sustainability. Against the background of growing interest in socially-oriented investments, the nature, performance and issues surrounding ethical funds are explored below.

2.7.1. Background, Definition and Concept

Sparkes (2001) stated that the idea of ethical investment was originally initiated by church investors in the US in 1926 and in the UK in 1948. Hence, it is easily understandable when Statman (2005: 14) found that "the origins of socially responsible investing lie in religion". The present form of ethical investment, however, came about as a result of the socio-political events in the late 1960s and the early 1970s, following the rise of human rights activism. Examples of this can be witnessed through the

organisation of highly vocal and public campaigns on such ethical issues as the Vietnam War and the apartheid regime in South Africa. Furthermore, through the advent of a growing sense of altruism, as well as a greater awareness of consumerism, human rights, animal rights and environmental protection, the case for ethics is much stronger and better supported now than ever before.

The Ethical Investment Research Service (EIRS) report (1999) shows that ethical investment in the last four decades has shown spectacular growth, both in terms of the number of funds created and the size of its investment value. The market for ethical investment has also expanded beyond its original markets in the US and the UK and has attracted investors in Australia, Canada, Japan and some other European countries. However, no consensus has yet been achieved about the actual value of the size of ethical investment worldwide shown by the varying figures reported in spite of its tremendous growth.

As would be expected, there is naturally more reliable data available for the more mature markets of the US and the UK in the current literature. Socially responsible investing (or SRI), which is the American term for ethical investment, has risen by 324% from US$639 billion with just 55 funds in 1995 to US$2.7 trillion with 260 funds in 2007 (Social Investment Forum [SIF] Report, 2007). The fact that different terminologies are used to capture the same single concept across the globe is indicative of the diversity of opinions about it. Besides the British and the American phrases mentioned above, Kurtz (2005) stated that this concept is captured by using the expressions of ‘sustainable investing’ and ‘green investing’ in the rest of Europe.

What ‘ethical investment’ actually means is an issue that demands clarification. Although the individual terms ‘ethical’ and ‘investment’ seem to have straightforward definitions, their combination seems to render the situation vague and makes it hard to offer a straightforward collective definition for the expression. This is because the definition needs to take account of a range of factors such as investment requirements, practices and performance measures. Gregory *et al.* (1997) state that this vagueness and confusion stems from a number of issues such as the subjective nature of the issue and the diversity of ethical considerations, as well as personal values and beliefs on which investment practices and valuation methods can depend. As an example, most ethical investors would regard the provision of cigarettes as inherently immoral whilst some

would regard this as fine in itself as long as the manufacturing process is conducted correctly (*i.e.* offering 'fair' terms for tobacco farmers) and the cigarettes are sold in a controlled manner to informed adults (*i.e.* not to children). Gregory *et al*. (1997) further highlight that investment practices and valuation methods could largely depend on one's personal values or beliefs and their implementation. Sparkes (2001) similarly states that the dilemma of defining 'ethical investment' has not only been a problem or struggle for professional fund managers, but noted that governments, too, have equally found it difficult to offer an all-encompassing definition or specification of the legal requirements of 'ethical investment'.

It must be mentioned that although there seems to be a variety of ways to holistically capture the concept and the diverse nature of this specific type of investment, pragmatically speaking, ethical companies in general hold the view of promoting positive social, religious, environmental, and internal governance outcomes, whereas non-ethical companies conduct their business in activities generally accepted as promoting 'vice' like gambling, liquor, pornography, tobacco, arms dealing or manufacturing. A stricter definition can also include environmentally or morally questionable activities such as nuclear power development and animal testing.

Various attempts have been made by scholars to define ethical investment without a unanimously agreeable definition emerging. Lewis and Cullis (1990: 397) defined ethical investment as a type of investment "with attractive or desirable social characteristics", which is a simple but direct definition. Elsewhere, Mallin *et al*. (1995) maintain that an ethical fund is a fund that has either positive or negative criteria, which, in turn, will depend on the ethical objectives of the fund. To this end, ethical funds may incorporate both the positive and negative criteria in the decision-making process.

The holistic process of ethical investment is defined by certain contributors, such as Barnea *et al.* (2005), Sparkes (1995) and Tippet (2001), as the holistic process of a combined 'ethical approach' employed during the fund decision-making process. However, the most comprehensive definition seems to be that offered by Cowton (1994) as a set of approaches that bring together the social and ethical goals and constraints with the conventional criteria considered in decision-making processes that concern the acquisition, holding or disposition of a particular asset, particularly publicly traded shares.

The SIF suggests that ethical investment is a process that operates within a context of rigorous financial analysis, whilst according to Boasson *et al.* (2006), the process of ethical investing at its core regards the idea of social and environmental consequences, both positive and negative, of investment decisions as the paramount concern to be addressed before all others. In terms of policy implementation, an ethical investment has a range of pre-defined ethical criteria that are applied in the screening and stock selection process for the purpose of allowing a particular asset or stock to enter its portfolio. This practice or function is facilitated through the role of an independent ethical advisory board. Therefore, it can be said that the three distinct factors of investment objectives, policies and practices are what distinguish ethical investment from ordinary and traditional investments.

2.7.2. The Rationale for Investing Ethically and Its Critics

Ethical investment is a process that operates within a context of rigorous financial analysis, whilst according to Boasson et al. (2006), the process of ethical investing at its core regards the idea of social and environmental consequences, both positive and negative, of investment decisions as the paramount concern to be addressed before all others. In terms of policy implementation, an ethical investment has a range of pre-defined ethical criteria that are applied in the screening and stock selection process for the purpose of allowing a particular asset or stock to enter its portfolio. This practice or function is facilitated through the role of an independent ethical advisory board. Therefore, it can be said that the three distinct factors of investment objectives, policies and practices are what distinguish ethical investment from ordinary and traditional investments. The rational investor is naturally regarded as a risk-averse economic agent who seeks profit at all times. This is an assumption central to modern portfolio theory. With this assumption in mind, it can be said that a rational economic agent, therefore, is an individual completely focused on maximising his revenues or benefits and who is only concerned about the risk factor. Such a person, then, would not have any consideration for ethical and moral values in his or her investment decision-making process. However, standard economic theory does not agree with this perspective fully and insists that economic return is not the only factor that needs to be considered in investment and those non-monetary factors must be entered into the equation too. Measuring non-financial factors, however, is not an easy task and requires the cautious

acceptance of any performance valuation model that attempts to incorporate subjective values. This also explains the reason why conventional performance valuation models, which use financial return as the basis for performance measurement, remain the main or the preferred valuation methods in the ethical sector.

Winnett and Lewis (2000), Basso and Funari (2003), Beal *et al*., (2005), Lydenberg (2007), Cullis *et al.* (1992), Anand and Cowton (1993) and McKenzie (1977) maintained that there is more to investor sentiment than simply the economically rational man and that the ethical investor not only bears in mind ensuring financial profit returns but also places a value on the adherence to ethical standards, desires and values. The motivation of the ethical investor is aptly captured by Cowton's (1994; as cited in Sparkes, 2001) statements when he found that the ethical investor cares not only about the size of his or her future financial return and the risks associated with it, but also its source – the nature of the company's goods or services, its business location as well as the manner in which it conducts its affairs.

To this end, Beal *et al*. (2005) suggest that the rationale behind ethical investment falls into three categories: gaining the investor superior financial returns, gaining the investor non-wealth returns, and contributing to social changes. Lydenberg (2007), in a more recent study, stated that contemporary investors can be categorised into three groups: universal investors, social investors and rational investors. Rational investors represent traditional investors who are only concerned about maximising their profits, while universal investors and social investors are the kind of investors who are also concerned about the return to the economy and contribution to society as well. As a result of this growing popularity of universal or social investors, ethical or socially responsible investment (SRI) oriented investment is well placed to develop further both in theory and practice. This popularity would, therefore, provide the opportunity for non-monetary rewards to be correctly measured and fed into the valuation of investment return in future.

Another motivating factor for investors to invest ethically is linked to religion and a greater innate compatibility with an individual's religious faith. McKenzie (1977) maintains that belief in God's existence would encourage an investor to adopt certain moral values or ethical principles, which can be translated into a certain practice or behaviour that can significantly influence his or her investment decision. This religious

impact on ethical investment has been reported by a wide variety of other experts such as Boasson *et al.* (2006), Ghoul and Karam (2007), Kreander *et al*. (2004), Porter and Steen (2006) and Statman (2005).

From the available body of knowledge, therefore, can be concluded that ethical investors remain largely akin to the rational economic man revered in financial economic theory, since the ethical investors have managed, or have been able to achieve, their economic goals, too. With their noble intention to pursue non-pecuniary rewards, these investors can invest with personal satisfaction, support social and environmentally sustainable business activity, promote greater internal governance and instil corporate social responsibility. Overall, these are sufficiently powerful factors to enable a distinction to be made between ethical investors and traditional investors.

Despite its growing importance and its admirable underlying intentions, ethical investing or SRI has been subject to a range of criticisms. With the limitations that embracing the values and principles of ethical investment imposes on organisations, these organisations, as a result, will be discouraged to a certain extent from making new investments and contributions towards the overall economy, according to Barnea *et al*. (2005). Munnel and Sunden (2005), for instance, expressed their findings about the real reasons behind pension funds' purchase of SRI-based mutual funds. They maintained that there are potentially certain political agenda involved in terms of the achievement of particular political benefits, which are associated with enhancing the popularity of SRI investments. The critics of ethical investment have even gone as far as saying that, even for ethical investors themselves, the key criterion is the gaining of substantial pecuniary rewards or returns and that the basic concept of ethical investment is not their real motive. This doubt, voiced by the critics, is in actual fact what ethical investors themselves say in their defence when they are criticised by some others about the ignoring of the financial benefits in ethical funds.

The dynamics of these arguments and counter-arguments are extremely powerful, and the issue can be powerfully debated from a multitude of perspectives, depending on each stakeholder's own interests. To this effect, Bernstein (2006) stated that although non-economic satisfaction can be gained from ethical behaviour, monetary temptation can easily induce finance and corporate practitioners to behave unethically in their real practice and behaviour. This point is further supported in a study by Sparkes (1995),

who reported that the outcome of opinion polls conducted among SRI investors has revealed that only 35% of the investors would continue to invest in SRI funds if the expected financial rewards from these funds fell below those of the non-SRI funds. On the other hand, Hollingworth (1998; as cited in Muñoz-Torres *et al.* 2004) found that ethical investors are committed investors who have a genuine intention to pursue ethical objectives and that they are even prepared to accept lower financial return from their investment while practising their ethical beliefs.

The root cause of an ethical fund's underperformance is regarded as lying in two disadvantages that critics associate with ethical investment. The first disadvantage is the presence of high operational costs, as a result of the appointment of ethical consultants for the fund's ethical advisory board as well as the hiring of investment analysts to look for under-priced securities and the enhanced burden of a continuous monitoring capability of the fund's portfolio to ensure compliance with the fund's ethical parameters. The second disadvantage voiced is regarding ethical screening, which would mean the presence of, and accessibility to, less efficient portfolios for ethical funds. This is because of the constraints placed on ethical investment, which limit its entire investment assets and securities thereby requiring it to select only certain ethically-approved securities.

In such a context, Kurtz (2005) argues that the ethical investor ends up with having a suboptimal portfolio when measured against the modern portfolio theory. Similarly, Schwab (1996) stated that, as a result of ethical screening, the inherent deprivation of choice and flexibility will necessarily incur additional costs to the ethical portfolio. Therefore, Mueller (1994) found that these shortcomings create the 'cost-of-discipleship hypothesis', which is about opportunity costs brought about as a result of the adoption and application of a more rigorous set of standards other than those established in the surrounding culture.

2.8. ETHICAL FUND AND MUTUAL FUND PERFORMANCE VALUATION METHODS

A number of scholarly studies have been conducted on the performance of ethical funds and the suggestion that these funds can outperform conventional funds has been well scrutinised. These studies, however, come with varying degrees of significance in the available literature, such as Statman (2006), Fischer and Khoury (2007), Mallin *et al.* (1995) and Luck and Pilotte (1993).

An observation applicable to the majority of these studies is that ethical funds' superior performance takes place more frequently during bull market periods and that it was significantly correlated with the performance of the market index and smaller capitalised stocks. An objection that can be raised about the previous studies in this respect is that these studies associate the enhanced performance of ethical funds with its growing popularity as well as with the 'small firm effect', which does not seem to be a convincing argument for ethical funds' better performance. Amongst the scholars, Bauer *et al.* (2005), Bello (2005), Kreander *et al.* (2005) and Scholtens (2005) do not firmly support either side of this argument and prefer a middle ground, stating that the difference between ethical and conventional funds is not statistically significant.

There exist three standard methods for the purpose of portfolio performance valuation. In the analysis of ethical funds' performance, the *Jensen Alpha Index*, the *Sharpe Index* and the *Treynor Index* have been used extensively, either singularly or collectively, to generate a more robust analysis. A combination of the traditional models with other valuation methods has also been used for the purpose of valuation. The Fama and French (1992) model, the ARCH model and the Carhart (1997) - factor model are examples of these traditional models. One key caution that needs to be exercised here when applying valuation models in combination is the reliability and validity of the obtained results, as various methods may produce conflicting results. An example of this can be seen in the work of Scholtens (2005), who discovered the superiority of the SRI performance with the CAPM index model, and the exact opposite was revealed with the application of the Fama-French three factor model.

There is a general feeling that the traditional implemented portfolio performance measures may not be totally appropriate in evaluating ethical funds' performance due to

the incorporation of certain ethical components that are not completely understood or accounted for in the standard models. As a result, certain alternative valuation techniques like the 'data envelopment analysis' (DEA) approach and the 'Value-at-Risk' (VaR) model have been devised by scholars. The 'matched pair analysis', adopted by Kreander *et al*. (2005) is another valuation method that allows for the direct comparison between ethical funds and conventional funds.

It can, hence, be said that the results obtained from past studies on the performance of ethical funds appear to be inconclusive. There seem to be persistent disagreements amongst researchers as to the ability of ethical funds to outperform conventional funds when on the same footing. However, the emergent and growing evidence for ethical funds is encouraging enough to make these funds a viable investment instrument. The presence of certain research variables, such as the use of various data sets or sampling and market conditions applied in the previous studies, are associated with the contradictory results obtained.

As regards to mutual funds, since they fluctuate, investors must take on the risk and returns of the mutual funds but individual investors are more attracted by the benefits of diversification offered by mutual funds over direct equity investment and they represent a popular investment vehicle. As a consequence, investors have paid quite a lot of attention to the risk and return of mutual funds. This is an important point in evaluating the performance of mutual funds.

There is a vast body of literature on mutual fund performance evaluation. Earlier papers in the literature on mutual fund managers' stock-selection ability provide evidence suggested that mutual fund managers possess superior stock-selection skills. Sharpe (1966) suggested a measure for the evaluation of portfolio performance. Drawing on results obtained in the field of portfolio analysis, Treynor (1965) suggested a new predictor of mutual fund performance - one that differs from virtually all those used previously - by incorporating the volatility of a fund's return in a simple yet meaningful manner. Jensen (1968), on the other hand, derived a risk-adjusted measure of portfolio performance that estimates how much a manager's forecasting ability contributes to a fund's returns.

Later studies (Grinblatt *et al*.,1995; Carhart, 1997) argued that the stock-selection skill can be solely attributed to the momentum effect of Jegadeesh and Titman (1993). Bollen and Busse (2005) used high frequency (daily) data and concluded that a fraction of mutual fund managers generate abnormal returns which persist for only a quarter. Similar conclusions are reached by Kosowski *et al*. (2006), who find that a sizable minority of managers pick stocks well enough to more than cover their costs persistently. In another study, Barras *et al.*, (2010) introduced controls for false discoveries and conclude that 75% of funds exhibit zero alpha (net of expenses), while controlling for false discoveries substantially improves the ability to find the few funds with persistent performance. Extending the modelling frameworks, Fama and French (1992) used bootstrap simulations to distinguish luck from skill and find that some managers have sufficient skill to produce positive fund performance.

The strand of literature studying mutual fund managers' market timing ability has also been explored. Treynor and Mazuy (1966) and Henriksson and Merton (1981) were among the first studies that looked into mutual fund managers' market timing activity and these studies respectively concluded that the average market timing performance of mutual funds is insignificant. The lack of market timing ability has been confirmed in a number of later studies. Bollen and Busse (2001) provide evidence suggesting that mutual fund managers possess significant market timing skills. In addition, using a multi-factor extension of the Treynor and Mazuy (1966) model, Comer (2005) provides evidence of significant stock market timing ability for US hybrid mutual funds. Moreover, Jiang *et al.* (2007) use holdings-based measures and also conclude that US domestic equity funds have positive timing ability. In addition to market timing ability, more recent studies investigated the ability of managers to time investment style returns (Swinkels & Tjong-A-Tjoe, 2007) or industry returns (Busse & Tong, 2008).

Mamaysky *et al.* (2008) allow mutual fund betas to vary over time and provide convincing evidence suggesting that mutual fund managers engage in market timing practices to positive effect. As indicated by Statman (2000), the SDAR of a fund portfolio is the excess return of the portfolio over the return of the benchmark index. In a emerging country case, Rao and Ravindran (2003) evaluated performance of Indian mutual funds in a bear market through relative performance index, risk-return analysis, Treynor's ratio, Sharpe's ratio, Sharpe's measure, Jensen's measure, and Fama's

measure. The study used 269 open-ended schemes (out of a total of 433 schemes) for computing the relative performance index. Then, after excluding funds whose returns were less than risk-free returns, 58 schemes were finally used for further analysis. The results of performance measures suggest that most of mutual fund schemes in the sample of 58 were able to satisfy investor expectations by giving excess returns over expected returns based on both premium for systematic risk and total risk.

Moreover, Bijan and Saiket (2003) conducted an empirical study on the conditional performance of Indian mutual funds, which used a technique called 'conditional performance evaluation' on a sample of 89 Indian mutual fund schemes and measured the performance of various mutual funds with both unconditional and conditional forms of CAPM, Treynor-Mazuy model and Henriksson-Merton model. The effect of incorporating lagged information variables into the evaluation of mutual fund managers' performance was examined in the context of India. The results ultimately suggested that the use of conditioning lagged information variables improves the performance of mutual fund schemes, which causes alphas to shift towards the right, reducing the number of negative timing coefficients.

In extending the empirical framework, Bello (2005) matched a sample of socially responsible stock mutual funds to randomly selected conventional funds of similar net assets to investigate differences in the characteristics of assets held, degree of portfolio diversification and variable effects of diversification on investment performance. The study found that socially responsible funds do not differ significantly from conventional funds in terms of any of these attributes. After reviewing the Conventional and Ethical mutual funds comprehensively, in the following chapter the study will now thoroughly review the field of Islamic finance.

2.9. THE TREND AND PERFORMANCE OF THE UK AND GLOBA ETHICAL FUNDS

The value of ethical investment in the UK is estimated at £6.1 billion in 2010 whilst in the US the value of socially responsible investing (SRI) is estimated at US$3.7 trillion in 2009 (Abd-Karim, 2010). A similar trend was experienced in the UK with the ethical investment sector displaying a substantial growth from £372 million in 1992 to £6.1

billion by the third quarter of 2010. Although this clearly reflects an impressively strong growth rate, ethical investment's market share remains relatively small when it is compared with the total size of the professionally managed investment funds. In the context of the USA, for example, SRI funds comprise only 11% of the overall assets under professional management, a figure, which was equivalent to US$25.1 trillion in 2007. Haigh (2006) estimated the market share of ethical funds at as little as approximately 0.5% at that time. Therefore, it can be said that although the growing market share of the ethical funds has been small, ethical investment, in fact, continues to have an enormous potential for future development.

The performance of UK ethical mutual funds was studied in comparison with certain other benchmarks by Luther *et al*. (1992). The benchmarks used by these researchers were the FTSE All Share Price Index and the Small Company Index. The results of their study revealed that the evidence for ethical funds outperforming these two indices was rather weak. In a separate study, however, Luther and Matatko (1994) concluded that in comparison with the Small Company Benchmark, ethical funds showed better performance. Furthermore, Mallin *et al.* (1995) managed to compare 29 UK ethical mutual funds with 29 conventional funds between the years 1986 and 1993. To identify performance, they applied the Sharpe, Treynor, and Jensen measures. The benchmark was the FTSE All Share Price Index, and the findings suggested that a small majority of both ethical and conventional funds underperformed the market. The findings of this study were consistent with those of Luther *et al.* (1992).

The UK ethical mutual funds were further examined in another study by Gregory *et al.* (1997) using a matched pair analysis that compared 18 ethical funds with 18 conventional funds. The obtained results revealed negative Jensen alphas for both types of funds, which suggested a significant underperformance on the part of the ethical funds as far as the FTSE All Share benchmark at the 5% level was concerned. With slightly different results, Mallin *et al.* (1995) stated that their study revealed insignificant differences between the two types of fund performances. Gregory and Whittaker (2007), in a different study comparing 32 ethical funds with five non-ethical funds between 1989 and 2002, concluded that performance is 'time variant', even when either static or time-varying models are used. They also provide evidence below observed in support of market equalling performance persistence in the examination of

lengthier time horizons. “However, neither SRI nor non-SRI funds exhibit significant under performance on a risk/style adjusted basis, despite comparatively poor absolute performance. In addition, we show that performance appears to be time-varying, and that conclusions on performance itself are influenced by whether a static or time-varying model is employed” (Gregory and Whittaker, 2007:19).In the context of the USA, 34 ethical funds and 894 conventional funds between 1963 and 2001 were examined by Geczy *et al*. (2003). They focused their study on the costs and expenses associated with ethical funds and maintained that the managerial funds, which, as explained earlier in the literature, are imposed on ethical funds, are extremely high and this is why ethical funds end up underperforming in comparison to conventional funds which enjoy the absence of those expenses. However, no significant difference in risk-adjusted returns between ethical and conventional funds was reported in Bauer *et al*.’s (2005) analysis of German, UK and US ethical fund performance using the Carhart multi-factor model. It was found that the US ethical funds are relatively dominated by large-cap stocks, whereas conversely the UK and German ethical funds are more likely to be invested in small-cap stocks. The results of this study revealed that ethical funds are more growth-oriented than conventional funds, although they are still in their evolutionary stages.

In another study, Kreander *et al.* (2005) evaluated the performance of ethical and non-ethical funds using a matched pair analysis between 1995 and 2001. Their study sampled 60 European funds, 30 of which were ethical and the other 30 were non-ethical equity funds. For the purpose of conducting this study, the stock selection modelling approach of Sharpe, Treynor, and Jensen was applied. From the results, it was revealed that, in general, mutual funds underperformed benchmarks as suggested by the Jensen measure, and the final result of the study recorded no performance differences between the two fund types, based on the specific performance measure used in this study.

To conclude, a large number of empirical studies have been conducted to compare and measure the factor of performance as far as ethical and conventional funds are concerned. Most of these studies, however, have reported insignificant differences between the performances of the two. The only evidenced and differentiating argument put forward by scholars is that of the cost factor associated with ethical funds, which

may be the reason behind the underperformance of these funds as revealed in some studies.

2.10. CONCLUSION

This chapter has shown a literature survey on the aspects of mutual funds with range of opinions put forward in the existing body of knowledge. A definition of most mutual funds is been illustrated, along with the various types of mutual funds and their specific characteristics. Also, this chapter concludes with an additional critique of non-Islamic mutual funds, ethical mutual funds, and conventional mutual funds. In the next chapter will be about the principles and nature of Islamic Finance.

CHAPTER 3

AN INTRODUCTION TO ISLAMIC FINANCE: PRINCIPLES AND NATURE

3.1. INTRODUCTION

According to the information of the International Organization of Securities Commissions (2004), over the last 30 years Islamic finance has grown rapidly with strong encouragement from the key Islamic markets. As displayed in Table 3.1, the creation of modern Islamic financial corporations was initiated with the founding of Islamic banks. The primary reason for the rapid development of Islamic finance has been the sustained long term rise in oil prices, which required an Islamic financial system to accommodate the accumulated wealth derived from ongoing oil sales and rise in oil revenues.

Table 3.1 Charting the Developments in Islamic Finance

	1970's	1980's	1990's	2000's
Islamic Finance Services Activities	**Commercial Islamic Banks**	**1) Commercial Islamic Banks 2) Takaful Insurance 3) Islamic Mutual Funds**	**1) Commercial Islamic Banks 2) Takaful Insurance 3) Islamic Mutual Funds 4) Asset Management Companies 5) Brokers and Dealers**	**1) Commercial Islamic Banks 2) Takaful Insurance 3) Islamic Mutual Funds 4) Asset Management Companies 5) Brokers and Dealers 6) Islamic Investment Banks 7) E-Commerce**
Region	**Gulf and Middle East**	**Gulf, Middle East, Asian Pacific and Americas**	**Gulf and Middle East and Asian Pacific**	**Gulf, Middle East, Asian Pacific and Americas**

Source: International Organization of Securities Commissions (2004: 16)

Table 3.1 outlines the growth and time trend in Islamic financial services. As this table shows, the period of the 1980s was when Islamic finance experienced the most dramatic change. This period not only saw the first spread of Islamic finance from the Middle East and the Gulf region to new geographic areas such as Malaysia and the Americas, but also witnessed the introduction of *Shariah* compliant insurance and mutual funds activity. As Table 3.1 depicts, the institutionalisation, institutional diversification,

expansion of instrumental markets and also product diversification has gradually taken place in the Islamic finance industry. Since the beginning of the new century and with the expanding globalisation, Islamic finance has expanded its geographical markets with its sophisticated instruments and products.

In looking at the structure of Islamic finance universe, Gait and Worthington (2007) assert that Islamic finance contains three main branches: Islamic banking, Islamic insurance, and Islamic mutual funds. In an overall view, Islamic finance must adhere to Islamic *Shariah* laws, and therefore the rules and principles of Islamic finance are ultimately governed by the *Shariah* laws.

Table 3.2 Sample of Established Islamic Banks

Bank Name	Country	Date of Establishment
Nasser Social Bank	Egypt	1971
Islamic Development Bank	Saudi Arabia	1975
Dubai Islamic Bank	United Arab Emirates	1975
Faisal Islamic Bank	Egypt	1977
Faisal Islamic Bank of Sudan	Sudan	1977
Kuwait Finance House	Kuwait	1977
Islamic Banking System International Holding	Luxembourg	1978
Jordan Islamic Bank	Jordan	1978
Bahrain Islamic Bank	Bahrain	1978
Dar Al-Mal Al-Islam	Switzerland	1981
Bank Islam Malaysia Bhd	Malaysia	1983

Source: International Organization of Securities Commissions (2004: 19)

As regards to the size of the industry, the Islamic banking industry has in its modern form existed for about 40 years; also, there are more than 500 Islamic banks possessing more than $2 billion in assets (The Banker, 2012).

Table 3.2 provides a sample of established banks in order to see the development of the sector.

3.2. PRINCIPLES OF ISLAMIC BANKING, FINANCE AND INVESTING

The rules of Islamic finance, which are derived from the *Qur'an* and Prophet Muhammad's sayings, are derived from Islamic *Shariah* law. *Riba* (interest), *gharar*

(uncertainty, trade in risk), and *maysir* (gambling) are the three main forbidden financial instruments, and, therefore, to be complaint Islamic trading must be entirely free from all these. Charging or receiving *riba* (usury or interest) is the first forbidden activity under the *Shariah* laws, as mentioned in the *Qur'an*.

Riba is the extra accrued debt on a large or small, fixed or variable, loan. In rationalising the prohibition of *riba*, Siddiqi (2002) stated that *riba* is unfair because the lender enjoys extra benefits from usury, but borrowers have to endure huge detriments and losses. He also mentions that it makes an overall economy inefficient, because lenders generate continuous profit and borrowers may endure failure when the economic situation worsens. Dar and Presley (2000) believe that there are many forms of interest, but the main type occurs when an unfair exchange between two parties exists. So, *riba* is forbidden due to the fact that it is inequitable, unjustifiable to one party and also, as Islamic economists articulate, it creates unoptimal resource allocation.

The second forbidden functional instrument is *gharar*, which is 'trading in risk'. According to El-Gamal (2001), when the buyer does not know what he or she has bought and the seller does not know what he or she has been sold, *gharar* arises.

As part of its ethical foundation, speculation, betting, gambling or taking serious chances are all prohibited in Islamic, which are known as *maysir*. According to Warde (2001), *maysir* includes an agreement between two or more people, in which the risk of loss is assumed; in this case, a loss for one means a gain for the other.

As a consequence, in Islamic finance, trading should be clear, stating in a contract the existing actual object(s) to be sold, with a defined price and time to eliminate any confusion and uncertainty between the buyer and seller.

In addition to prohibitions of these functional instruments, as stated by Hayat (2006) Islamic law prevents a plethora of activities in substantiating its ethicality. Investing in activities such as those involving alcohol, arms and defence, gambling, pork or pork products, pornography, or tobacco is not acceptable. Based on *Shariah* law, these kinds of activities are regarded as immoral, offensive and also against the human well-being.

As the discussion so far indicates, there are therefore clear similarities in the characteristics between Islamic and ethical or socially responsible investing as some

ethical funds are similarly prevented from investing into areas involving similar activities.

To better contextualise the concepts involved, the following section provides a more detailed overview of the rationale behind Islamic finance and its principal features.

3.2.1. The Prohibition of Interest

The prohibition of *riba* is one of the most important features of Islamic finance. Translated literally, *riba* means 'increase', 'addition' or 'surplus'. According to *Shariah* law (Islamic Law), *riba* is considered as an addition to the principle. This view implies that any payment for the use of the money, which is fixed in advance. is also seen as *riba* and therefore forbidden. This prohibition on interest is in fact not an entirely Islamic trait. Visser (2004) stated that the Christian Church at different times in history banned *usura* (a technical name for interest) on the basis of passages in the Bible.

Riba is prohibited in Islam on the basis of a number of verses from the *Qur'an* (2:275, 276 and 278; 3:310; 3:39; 4:161). Siddiqi (2004) asserts that these verses indicate five reasons for the prohibition of *riba* in Islam, the first being that it corrupts society; this originates from the connection of *riba* with *fassad* (corruption).

The second reason is the improper appropriation of other people's property, which also originates from *Qur'an*, where *riba* is described in verse 4:161 as 'cheating other people's possessions'. Thirdly, it ends finally in negative growth; this is implied by verse 2:276 in which *riba* is stated to contribute to 'negative growth'; this negative growth is interpreted as non-monetary growth, namely the decrease in social welfare. The fourth reason is that it demeans and diminishes human personality, as Qur'an verse 2:276 mentions about negative growth in society, which can be translated as 'individual loss of dignity' due to poverty it brings. Finally, *riba* is regarded as unfair; as identified by *Qur'anic* verses, although Siddiqi (2004) accepts that the reason for unfairness of *riba* is not clearly stated in the *Quran*.

Through a critical perspective, it can be argued that these reasons are incomplete and overlapping. While Siddiqi acknowledges that the reason for the unfairness of *riba* is not clear, this can also be equally observed in relation to the other arguments. For example, the reason for considering *riba* as an improper appropriation of other people's

property is not clear. It is also unclear in what way the negative growth in society would display itself. Moreover, the last argument is only a generalisation of the previous arguments, which all indicate the unfairness of interest. However, due to the revealed nature of these injunctions, these and similar reasons are generally used to clarify Islam's prohibition of *riba*. It should be noted that the translation of the ban on *riba* to the contemporary economic system is rather ambiguous, although it is widely accepted by the Islamic community. According to Qureshi (1991), some believe that in pre-Islamic Arabia, one form of *riba* was concerned a convention and so would make the prohibition on it irrelevant for modern-day banking. Kuran (1995) reached a similar conclusion.

Approaching the argument from a different perspective, namely one that views the root prohibition of *riba* as primarily geared to prevent debtors from being enslaved, other Muslim scholars have stated the idea that *riba*, as meant in the *Qur'an,* revealed itself in Prophet Muhammad's time in very specific forms, and that its prohibition cannot simply be extrapolated to all forms of contemporary interest. Actually, Trouw (2002) stated that the Islamic theological research committee at Cairo's Al-Azhar University ruled 21-1 that loans against a fixed percentage of interest are not prohibited under Islam.

There are still many Muslim scholars that do believe that the prohibition of *riba* is related to the modern world. Many members of the *Shari'ah* boards of Islamic investment companies hold this view, which is quite precise in interpreting what *riba* means nowadays, comprising within it bank interest in addition to fixed percentage of interest on bonds. Taking a pragmatic stance, its supporters do relax Islamic limitations in other ways (more on this in Section II.3) in order to make Islamic investing possible.

3.2.2 Gharar and Maysir

As stated before, the prohibition of interest is not the only significant feature of Islamic finance. The prohibition of *gharar* (risk) and *maysir* (gambling) are also important features of Islamic finance.

Gharar means not knowing the value of a bought good. According to Visser (2004), the forbiddance of *gharar* indicates that "commercial partners should exactly know the counter value which is offered in a transaction" (Visser, 2004). According to El-Gamal

(2001), this prohibition originated from Hadith 5 (the record of actions and sayings of the Prophet), which bans the buying and selling of things like 'the catch of the diver' or 'the birds in the sky'. This means that buying goods with unknown value beforehand is forbidden. For this reason, for example, buying 'the catch of the diver' is banned because the catch (and so its value) is not known beforehand.

Maysir means gambling, and its forbiddance is derived from its obvious prohibition in the *Qur'an* (2:219, 5:90, 91) as stated above.

Consequently, Muslims are banned from taking part in speculation of any kind in order to make money, as speculation is considered as a form of gambling. Since the prohibition on *gharar* and *maysir* indicates that Muslim investors are banned from investing in futures, options and other speculation-based derivatives, it has far-reaching implications for them. As a topical example, this restricts the scope for investment into a wide range of structured products, which are usually a combination of real assets and derivatives.

3.2.3. Equity Investment Criteria

As discussed, Muslims have many restrictions in their scope to prosper from financial markets. Investing in shares of companies however remains legitimate, albeit limited by strict parameters. Muslims are not permitted to invest in companies that produce or trade in prohibited goods and services. Prohibited goods and services not only include pork and pork-related products, alcohol, gambling, pornography and conventional banking, but also entertainment-related products and services such as music, cinema and hotels. Moreover, investing in tobacco, arms and defence companies is not recommended.

Furthermore, the core activities of those companies which do not include the aforementioned goods and services must relate to conventional criteria:

- The debt to total assets ratio of worthy companies may not be more than 33 per cent;
- Interest income and other 'impure' income may not be more than 5-10 per cent of total income;

- The amount of received debt may not be more than 45 per cent of total assets.

These criteria make it obvious that the strict regulation of not receiving or paying any interest has become more lenient. Attention needs to be paid to these rules, because even in within small companies' balance sheets, investors can find that a company may actually pay as well as receive interest. These concessions had to be applied, since almost every firm has at least some amount of prominent debt, as well as certain assets reaping interest income. When investing in these companies, in order to purify the total return from the 'unclean' return, the amount of return made through interest is often subtracted from the total stock/fund return, so as to 'cleanse' the accounting treatment in order to purify incomes.

In conclusion, because of the ban on *riba*, *gharar* and *maysir* and the prohibition of certain goods like alcohol and pork, Muslims operate within a narrower economic universe that insists on certain limitations to the range of investment possibilities available. Moreover, it can be concluded that there is not any general agreement concerning the precise meaning of *riba* in terms of current forms of interest and that the ban on *riba* has a primarily dogmatic base rather than following economic (one might even say logical) reasoning.

3.3. DISTINGUISHING INSTITUTIONAL FEATURES OF ISLAMIC BANKING AND FINANCE

According to Denton and Boos (2007), traditional banks are known as financial arbitrators between depositors and borrowers. They lend to borrowers using capital deposited by their clientele. The bank's gain or margin is the difference between the interest paid to depositors and the interest paid by borrowers. The banks' profits therefore are conventionally derived after the associated operating expenses are subtracted from the difference between these two figures.

As cited in Khan and Mirakhor (1987) and in Zaher and Hassan (2001), although profit through traditional banking means is prevented, an Islamic banking system is the same as a traditional banking system. The basis of Islamic banking is on profit and loss sharing (PLS) between the borrower and the bank. Iqbal and Molyneux (2005) mentioned that, in order to engage in an acceptable rate of return for depositors, the Islamic banks generate profit by mixing investment and commercial banking operations.

Additionally, the practical use of capital is the main difference between Islamic and traditional banks. In the traditional banking system, based on the generation of profit, money is used as a commodity that is bought and sold. However, in Islamic banking system, on the contrary, the money is used only for transaction and trading purposes, not for profit making based on interests. Table 3.3 summarises the differences between Islamic and conventional banking:

Table 3.3: Comparison of Islamic and Conventional Banking

Characteristics	**Paradigm Version of Islamic Banking**	**Conventional Banking**
Nominal value guarantee of: Demand deposits Investment deposits	 Yes No	 Yes Yes
Equity-based system where capital is at risk	Yes	No
Rate of return on deposits	Uncertain, not guaranteed	Certain and guaranteed
Mechanisms to regulate final returns on deposits	Depending on banks' performance/profits from investment	Irrespective of banks' performance/profits from investment
PLS principle is applied	Yes	No
Use of Islamic modes of financing: PLS and non-PLS modes	Yes	N/A
Use of discretion by banks with regard to collateral	Possible for reducing moral hazard in PLS modes Yes in non-PLS modes	Yes always
Banks' pooling of depositors' funds to provide depositors with professional investment management	Yes	No

Source: Errico and Farakhbaksh (2001: 14)

3.3.1. Special Requirements of Islamic Banking

In order to conduct effective banking supervision, Errico and Farahbaksh (1998) believe special issues need to be addressed and recognised. Firstly, acknowledging the impact of PLS modes of financing on Islamic banks is of great importance. This is particularly so when PLS facilities in the service of Islamic banks provide funds. Until PLS contracts expire, the agent-entrepreneur has an identifiable default, unless there is evidence of negligence or mismanagement on the part of the agent-entrepreneur. The 'default' of PLS contracts actually means that the investment project failed to achieve its aim. To put it in other words, it came in with a lower profit margin or no profit at

all, or even a loss. PLS ratios stipulate that the lower profit or loss is shared between parties in the case of encountering such instances.

For example, when there is a *mudarabah* contract which is a form of business organisation in which one person gives capital to another person for business and both of them share profits in mutually agreed proportions, the principal of a loan is received from the entrepreneur at the end of the period stipulated in the contract if, and only if, there is an increase in profits. However, in the case of a loss on the part of the entrepreneur, the bank could not recover its loan[1]. In cases such as this, any default would bear no requirement to be made good by the entrepreneur, who has an accountability purely limited in time and effort. Furthermore, controlling the agent-entrepreneur who manages the business is legally out of the hands of banks. The agent-entrepreneur is free to manage his enterprise, based on his own decisions.

Based on what is stipulated in the contract, banks are only authorised to share with the entrepreneur the profits or losses which stemmed from the enterprise. The opportunities for banks to monitor the businesses in which they invest improves in the case of *musharakah* which means 'act or contract of striking up a partnership' and direct investment contracts. This opportunity is thereby achieved since in the arrangements all partners may concur to the management of the enterprise, and banks hold direct voting rights.

3.4. ISLAMIC FINANCE INSTUREMNTS

Islamic financial instruments are depicted in a systematic and grouped manner in Table 3.4. Accordingly they are classified as PLS (profit-and-loss-sharing) and non-PLS or debt oriented products. The individual Islamic finance instruments are presented in this section alongside the table 3.4.

Mudharabah, being a PLS instrument, In the case of *mudharabah* loss borne by capital provider, Mudharabah offers the owner of capital the opportunity to invest in a certain project without being involved in managing that project, and limits his liabilities to the capital he provided (Errico and Farakhbaksh, 2001).

[1] It should be pointed out that, in a restricted *mudarabah* contract, the bank seeks to stipulate certain conditions considered essential in order to come up with a successful outcome. However, this is done *ex-ante* and the contract's terms and conditions can be altered during the life of the contract with just the mutual agreement of the parties.

The salient features of *mudharabah* is that the capital provider cannot claim a fixed amount of profit and an assured return on his capital if the project is profitable, as the profit will be distributed based on a pre-agreed ratio between the capital provider and the entrepreneur, in this case, who solely manages the projects. In the event the project is making losses, it shall be borne solely by the capital provider and none on the part of the entrepreneur, unless the loss is due to negligence of the entrepreneur.

Musharakah (PLS instrument) is analogous to a joint venture, where both the entrepreneur and investor contribute to the capital of the operations (assets, technical and managerial expertise, etc) in varying degrees and agree to share the returns, as well as risks, in proportions agreed in advance (Errico and Farakhbaksh, 2001)..

Murabahah (trade with mark-up or cost-plus sale) is widely used for instruments for short-term financing which is similar to more conventional purchase finance. Under *murabahah*, the seller purchases the asset at cost and sells it back to the customer at marked-up price agreed by both parties. Essentially, it is an agreement that refers to the sale and purchase transaction for the financing of an asset or project, whereby the costs and profit margin are made known and agreed to by all parties involved.

Bai al-Salam (advance purchase) is a sale and purchase transaction whereby the payment is made in cash at the point of the contract but the delivery of the asset purchased, as specified in the agreement, is deferred to a pre-determined date (Errico and Farakhbaksh, 2001).

Table 3.4. Islamic Financial Instruments

Type	Description	Comments
PLS Modes	**Profit and loss sharing modes**	**At the core of Islamk banking**
Mudarabah	***Trustee finance contract*** The bank provides the entire capital needed for financing a project, while the entrepreneur offers his labor and expertise. The profit. (or losses) from the project are shared between the bank and the entrepreneur at a certain fixed ratio. Financial losses are borne exclusively by the bank. The liability of the entrepreneur is limited only to his time and efforts. However, if the negligence or mismanagement of the entrepreneur can be proven he may be held responsible for the financial losses incurred. It is usually employed in investment projects with short gestation periods and in trade and commerce. It affects both assets and liabilities sides of banks' balance sheet. On the liabilities side, the contract between the bank and depositors is known as unrestricted *Mudarabah* because depositors agree that their funds be used by the bank, at its discretion, to finance an open- ended list of profitable investment and expect to share with the bank the overall profits accruing to the bank's business. On the assets side, the contract between the bank and the agent entrepreneur is known as restricted *Mudarabah* because the bank agrees to finance a specific project carried out by a specific agent- entrepreneur and to share the relative profits according to a certain percentage.	Three conditions need to be met: 1.The bank should not reduce credit risk by requesting a collateral to this purpose: it bears entirely and exclusively the financial risk. Collateral may be requested to help reduce moral hazard, e.g., to prevent the entrepreneur from running away. 2. The rate of profit has to be determined strictly as a percentage and not as a lump sum. 3. The entrepreneur has the absolute freedom to manage the business. The bank is entitled to receive from the entrepreneur the principal of the loan at the end of the period stipulated in the contract, if an only if a surplus exists. If the enterprise' s books show a loss, this will not constitute default on the part of the entrepreneur, except for negligence or mismanagement.
Musharakah	*Equity participation contract* The bank is not the sole provider of funds to finance a project. Two or more partners contribute to the joint capital of an investment. Profits (and losses) are shared strictly in relation to the respective capital contributions. It is usually employed to finance long-term investment projects.	Banks can exercise the voting rights corresponding to their share of the firm' s equity capital. Their representatives can sit on the firm' s board of directors. All parties invest in varying proportions, and have the right to participate in the management of the enterprise.

Non- PLS Modes	**Non Profit and loss sharing modes**	They are used in cases where PLS modes cannot be implemented, for example, in cases of small scale borrowers or for consumption loans.
Qard al-Hasanah	*Beneficence loans* These are zero return loans that the Quran exhorts Muslims to make to "those who need them." Banks are allowed to charge the borrowers a service fee to cover the administrative expenses of handling the loan, provided that the fee is not related to the amount or maturity of the loan.	
Bai' Mua'jjal	*Deferred payment sales* The seller can sell a product on the basis of a deferred payment in ins&&rents or in a lump sum payment. The price of the product is agreed upon between the buyer and the seller at the time of the sale and cannot include any charge for deferring payments.	Contrary to contracts based on the PLS principle, modes such as markup, leasing, and lease purchase have a predetermined and fixed rate of return and are associated with collateral. In fact, banks add a certain percentage to the purchase price and/or additional costs associated with these transactions as a profit margin, and the purchased assets serve as a guarantee. Additionally, banks may require the client to offer a collateral. These instruments can be considered to be more closely associated with risk aversion and they do not substantially differ from those used in a conventional banking system other than in their terminology and in some legal technicalities. They are considered to conform to Islamic principles because the rate of return is meant to be tied to each transaction, rather than to the time dimension. However, some Muslim scholars advocate a stricter utilization of such a modes.
Bai' Salam	*Purchase with deferred delivery* The buyer pays the seller the full negotiated price of a product that the seller promises to deliver at a future date. This mode only applies to products whose quality and quantity can be fully specified at the time the contract is made. Usually, it applies to agricultural or manufactured products.	
Ijarah and Ijarah wa iqtina'	*Leasing/Lease purchase* A party leases a particular product for a specific sum and a specific period of time. In the case of a lease- purchase, each payment includes a portion that goes toward the final purchase and transfer of ownership of the product.	
Murabaha	*Mark- up* The seller informs the buyer of his cost of acquiring or producing a specified product; then profit margin (or mark- up) is negotiated between the buyer and the seller, The total cost is usually paid in installments.	

Source: Errico and Farakhbaksh (2001: 9-12) (modified version)

Istisna (purchase order): A sale and purchase agreement whereby the seller undertakes to manufacture or construct according to the specifications given in the agreement. It is rather similar to *Bai al-Salam*, with the main distinction being the nature of the asset and method of payment. *Istisna* generally covers those things, which are made to order; an advance payment is not always necessary. The method of payment is flexible according to the terms agreed to by the contracting parties.

Ijarah (lease financing) is similar to leasing in conventional financing, is a popular instrument designed for financing an asset or equipment. It is a *manfaah* or benefit or the right to use the asset or equipment. Under *ijarah*, the lessor leases out an asset to the client at an agreed rental fee for a pre-determined period pursuant to the contract.

3.5. DEVELOPMENTS AND TRENDS IN ISLAMIC BANKING AND FINANCE

The main momentum for Islamic banking in Islam has been a certain amount of nostalgia for the loss of the golden era between AD 625 and the early sixth century. It remains a source of resentment that the policy of Western banking was imposed on much of the Islamic world during the time that European countries dominated distant colonies, which resulted in searching for Islamic alternative for banking and finance. Muslims have responded differently to such a dominance and the restricted choice of 'conventional products', and some of them used (use) under the *darura* principle (overriding necessity), and therefore, some prefer to open an interest-bearing account, while others open traditional accounts but refusing any receipt of interest; there are, however, some Muslims who strongly reject modern finance and choose to totally abstain from the banking industry simply choosing their mattresses as the best place of saving (Gate and Worthington, 2007).

In responding to the search for Islamic alternative, the quasi-academic field known as Islamic economics developed in the 1940s due to this rejection, and, during this time, the first exhaustive studies in order to establish Islamic financial institutions emerged. The demand for the services that Islamic financial institutions provide is increasing from the towers of Bahrain to the streets of London.

Currently, Islamic financial institutions represent one of the hottest components of banking, according to Ernst and Young Islamic Funds and Investment Report (EYIFIR) 2011, and Standard & Poor's Islamic Finance outlook projects that the current value of the Islamic financial services industry is more than $1 trillion and that the industry is predicted to grow to $4 trillion by 2020 at a rate of 10% per annum. In addition, there is $50bn in existing managed funds invested in equities according to Islamic principles.

While rough calculations of Islamic equity funds and off-balance-sheet investment accounts are between US$15 and US$30 billion. Bahrain's Noriba operations are conducted solely under *Shari'ah* principles, while other banks like HSBC, Citibank, Commerzbank and BNP Paribas provide both *Shariah*-compliant and conventional services. Countries like Malaysia and Indonesia, drawing from the success of Islamic institutions in Bahrain, Egypt and Dubai, identified the benefits in this potentially economically lucrative market so demanded banking and finance acquiescent with *Shariah*. The evidence from secular countries clearly shows that the advantages are more important than the religious tag (EYIFIR, 2011).

3.6. THE ISLAMIC EQUITY FUNDS INDUSTRY

Islamic equity funds (IEFs) and Islamic investing remain relatively new opportunity area to modern finance. There is little information about the market in which IEFs perform and how this industry developed. In the following section, there is a brief overview of the history, characteristics and market of the IEF industry (Abderrezak, 2008).

3.6.1. The History

The North American Islamic Trust founded the first Islamic equity fund in 1986 in order to manage, among other things, the financing of mosques in America. The number of IEFs as well as the value of assets invested was extremely small and relatively stable from 1986 to 1994. However, the number of IEFs grew rapidly to 130 from 1994 through to the beginning of 2006. Over a similar period the value of assets invested in IEFs grew from $800 million in 1996 to $6 billion in 2003. This increase in growth was caused primarily by a decree issued by the Islamic Fiqh Academy, which stated that,

within certain parameters, Muslims were allowed to invest in equities. Such practice was not clear prior to this decree and was therefore not embraced holistically by the Islamic community.

After the IEF market started growing in the mid 1990s, demand quickly increased for more transparency in these funds. For example, as with most new areas of the market, in the early stages of development of this industry there was no official Islamic index in existence then against which to measure and benchmark the returns of IEFs. The Dow Jones and FTSE both responded to this demand in 1999 by starting the Dow Jones Islamic Market Index (DJIMI) and the FTSE Global Islamic Index Series (GIIS) respectively. The DJIMI is a purposively screened subset of 2000 *Shariah*-compliant equities included in the broader Dow Jones World Index. Alternatively, the GIIS tracks a composite collection of about a 1000 *Shariah*-compliant equities and is a subset of the broader FTSE World Index. Both indices are diversified through a broad range of parts and regions although a high regional exposure to America is visible within the DJIMI.

Siddiqi (2002), Visser (2004) and Failaka (2002) believe that, before the 9/11 terrorist attack and the bursting of the 'dot.com' bubble, many IEFs were weighted heavily to information technology stocks, because of technology stock's relatively non-problematic underlying conduct and thus non-contentious fit with the necessary criteria. The bursting of the 'internet bubble' in 2000 made Muslim investors hesitant to continue to invest heavily in technology and so they substituted this for safer areas like healthcare. Despite this, an important part is still played in IEFs allocation by technology stocks. In fact, the DJIMI has a 40 per cent weighting to the technology and healthcare sectors, which is largely divided equally between these two areas.

Nowadays most IEFs are quite basic open-ended mutual funds, which seek to offer medium- to long-term growth on the basis of capital appreciation rather than dividend income. Growth stocks are often preferred, but there seems to be no strong preference purely for size. Exotic funds such as 'contrarian funds' and other behavioural finance-related funds remain rare to non-existent for the time being however, a limited number of hedge funds and private equity funds have emerged.

IEFs are mainly offered by local players, but are also available from some large investment banks like UBS, Citigroup and Merrill Lynch. Another global investment bank, HSBC, has even created a tailored sub-company that specifically targets Muslim clients called HSBC Amanah Finance.

3.6.2. The IEF Market

The potential IEF market is unsurprisingly very big with a target market of approximately 1.3 billion Muslims globally with an ever growing middle class. For instance, India has the second largest Muslim population in the world, estimated to represent nearly over 2000 million people even by 2010, and the demographically transition and economic change positively affecting the net wealth of the total Indian population is also greatly driving the net wealth of this huge Muslim subset. Pakistan is another example of a growing economy with a massive Muslim population, reaching an estimated 180 million Muslims with an indication of observed growth despite the political unrest.

Siddiqi (2002) believes that the growth of the middle class in such economies is interesting, since most IEFs have minimum investment thresholds between $2,000 and $5,000, which is sufficiently modest to attract a considerable number of middle class clients. Such opportunity has not escaped the market and the IEF industry has already clearly ensured it structurally caters to this segment. For example, Failaka (2002) observes that only one of the 15 largest IEFs (in terms of assets) has a minimum investment that is over $25,000.

Although highly attractive, the growing middle class for IEFs is by no means the only interesting segment to be in. For the sellers of IEFs, many 'high net worth' and 'ultra-high net worth' individuals in the Middle East are excellent clients. The amount of money circulating in the HNW and UHNW markets has increased many times over from an already high value because of recent rises in oil prices. Accordingly, some IEFs specifically target the high net worth individuals, with a minimum investment threshold ranging from one to five million dollars.

There are many ways of Islamic investing in the form of socially responsible investing. In the US alone, this industry was collectively valued at over $2.29 trillion by 2005. The large growth potential of IEFs, however, is in itself not enough to make the industry flourish. Many reasons for caution, aside from a difficult economic climate for generating positive performance, stand in the way of healthy growth in the IEF industry. Failaka (2002), for example, mentions the following four items, which still remain important issues:

(i) *Distribution channels*: sets of independent organizations/firms (called intermediaries) involved in making the funds available for consumption;

(ii) *Breadth of products*: refers to the diversity of funds of an investment firm. There is a need for more subdivision and style, based on IEFs and exotic funds, in a manner that meets the more specific demands of investors. Moreover, the limited number of IEFs lowers the choice of potential investors;

(iii) *Fee structure*: on average, IEFs currently charge higher management fees than traditional funds; the fee structure of IEFs needs to be more competitive;

(iv) *Client education*: for many Muslims, there is still too much ambiguity in respect of the permissibility of investing in equity. So, possible clients need to be educated about this and convinced about the permissibility of equity investment.

In addition to this list, it can be fairly stated that IEFs are probably not marketed very well. An example of this is the fact that many investors (even Muslim ones) do not know of the existence of specially tailored IEFs back in the late 1990's. Ahmad (2001) supports this view by highlighting that marketing channels of IEFs are not effective enough yet to penetrate the small and middle-class savers. Currently, Ernst and Young Islamic Funds and Investment Report 2011 shows that the Global Islamic Funds in 2010 expanded by 7.6% reaching $58 Billion in assets under management, which is 13% higher than 2008. Such ineffective distribution is being addressed and the general awareness of IEFs is being raised significantly.

One can conclude, hence, the IEF industry has, in its short history, seen extensive growth and that the market for Islamic investing is large enough to be attractive. However, to fully achieve its full growth potential, complaint Islamic investment comes at the cost of assuming extra risks, and to minimise such risks the industry still needs to evolve in certain critical areas.

3.6.3. Specific Risks

IEFs are exposed to specific risks that are normally not borne by traditional funds due to their nature. Diversification is the most obvious risk due to the fact that IEFs' limited investment nature, as they are also therefore perennially limited in their diversification potential. The risk of providing 'nearly efficient' diversification may not be as severe as it at first might appear, however, since the number of permissible securities remains large and contains sufficient options to easily build a portfolio affording good diversity of geographic, sector, capitalisation and currency exposures *etc*. Abdullah *et al.* (2002) also come to the conclusion that whilst the diversification level of Islamic funds is less smooth than that of traditional ones, it is still robust and therefore a very important tool for reducing risk.

Ahmad (2001) highlighted that since IEFs are a relatively new occurrence they lack a long enough observation period for ideal analysis and sufficiently complete track records. In this situation, long-term performance evaluation is made more difficult not only because of the data deficiency (which in some cases even limits statistical analysis) but also because the unique behaviour of IEFs through a number of different bear and bull markets cannot be evaluated. Currently, IEF's grasp the attentions of the database provider such as Bloomberg, Thompson Reuters, DataStream and many others; this increased the reliabilities and creditability in the research area of IEF's to be on the same page with Global Conventional and Ethical Mutual Fund's.

According to Hakim and Rashidian (2002) and Ahmad (2001), the lack of adequate data or benchmarks is another concern regarding IEFs as they are at times inherently opaque because of this. Prior to the Dow Jones and FTSE started their Islamic indices, there were no appropriate criteria against which to evaluate IEF performance so investors had

no way of knowing how well or how badly a fund was performing relative to its peers. Furthermore, some countries do not have specified reporting requirements regarding the performance of IEFs, which reduces the incentive for IEFs to be clearer about their activities.

Due to being restricted from investing in companies with high debt, IEFs normally do not consider optimal total asset ratios and are thus prone to investing in sub-optimally supported companies. Moreover, being exclusively bound to invest in companies with low debt may also impart the additional burden of a high level of disclosure to companies such as start-up companies which may then have difficulty in acquiring debt to grow. Because of the small size of start-up companies, IEFs might therefore assume a higher exposure to the failure of small growth stocks who fail because of a lack of sufficient cash flow. From another corporate finance perspective, IEFs may also run a risk of non-compliance creeping in by holding shares in companies rather than investing in the company's projects. This is because companies that have a high level of income from interest (which, apart from banks, is likely for most companies due to large cash holdings) do not pass Islamic screening criteria. IEFs can only invest in companies with relatively small amounts of cash but if they buy shares in a company whilst it is compliant, the company may naturally grow in due course and breach the strict guidelines if left unmonitored.

When these small cash holdings are a result of firms investing in 'bad' projects, just to get rid of the cash, this will have a negative impact on the firm's future results later on. However, there are many reasons why companies have low cash holdings, including the fact that some companies are just highly disciplined, continually ensuring no unproductive assets are held on their balance sheet for extended periods.

IEFs cannot invest in companies in which receivables make up more than 45% of total assets. This restriction inherently means that IEFs may run the risk of investing in illiquid companies, since low receivables may mean a lower working capital and quick ratio.

37. ISLAMIC MUTUAL FUNDS

As can be seen from the above, the Islamic finance industry has developed substantially over recent years. The importance of, and growth in, Islamic banking and finance has also been matched by the development of the mutual fund industry. This section outlines the filtering process of Islamic mutual funds and then briefly highlights the history and current trends in the Islamic mutual fund industry.

3.7.1. Definition and Working Mechanism

According to Iqbal and Molyneux (2005), the features of an Islamic mutual fund are the same as those of a traditional fund in terms of being a depository for investment capital. There are many types of asset class held within Islamic mutual funds, but equity is the main focus of this thesis. As mentioned above, Islamic mutual funds follow *Shariah* principles. Being free from interest, uncertainty, and 'excessive' speculation satisfies the trading laws that were outlined and discussed earlier and the process of selection is known as *Shariah* screening. Of additional major importance in investment decisions is not investing in activities involved with such things as alcohol, arms and defence, gambling, pork or pork products, pornography, or tobacco.

As in Islamic banking and finance, in the case of Islamic mutual funds, the *Shari'ah* committee evaluates the acts of the fund in terms of satisfying the aforementioned *Shari'ah* principles, but an Islamic mutual fund does have a committee called *Shari'ah* Board of Directors or *Shari'ah* Advisory Board to monitor and analyse the activities of the fund based on the investment nature. Generally, in these kinds of committees, there are at least three scholars that filter and purify forbidden acts.

Iqbal and Molyneux (2005) stated that the screening process in an Islamic equity mutual fund examines the stock company's source of income and any proportion of unjust activity greater than 10% means that the company's stock is deleted. For example, a hotel group that earns more than 10% of its gains from alcohol sales would not be allowed to work in an Islamic fund, whereas if alcohol sales were 9% of total gains, that would be permissible. On the other hand, the *Shariah* committee will also consider the

liability to equity ratio for companies. Basically, principal portion payments are made when a ratio greater than 33% is indicated, and so in an Islamic mutual fund such a company's stock would not be allowed. This is known as negative screening using financial statements.

Elfakhani and Hassan (2005) assert that by using debt factor, Islamic mutual funds cannot be hedged. One of the ways of purification is done through *Zakah*. According to the Islamic Shariah, *Zakah* is a form of charity that an individual would pay out of his/her personal wealth, which exceeds a minimum limit, called nisab in Islamic *Sharia*, that has not been used at least for the last one year. The *Zakah* rate varies with the type of the aset holds by that individual. Normally, 25 percent Zakah is paid on monetary wealth and other earned income (Alqaradawi, 1999). However, DelLorenzo (2000) argues that the calculation of *Zakah* on investment profits is still controversial, therefore, needs an extensive deliberation and debate. .

Islamic mutual funds must operate in a way which is *Shariah*-compliant; this means that it should not involve interest-based debt or contain speculation. Moreover, Islamic mutual funds cannot trade on margin; that is, they cannot use interest-paying debt to finance investments. Since conventional funds like hedge funds, arbitrage funds, and leveraged buy-out (LBO) funds all depend on enormous rates of borrowing in order to finance their investment practices, they are prohibited for Muslim investors. Engaging in sale and repurchase agreements (repos or buy-backs) is also not allowed. The reason for their prohibition is that the aforementioned transactions are considered to be similar to charging interest. Speculation is not allowed for Islamic fund managers, although it is allowed for conventional mutual fund managers. Speculation is much like a game of chance and is unacceptable as long as there is not enough information or there is an ambiguous situation. After thorough consideration of a risk, an Islamic economic unit is expected to assume risk.

Sometimes there may be a partially contaminated earning income, which some scholars allow to be cleansed and purified. For example, there are companies that have a minimum proportion of interest income or that earn tolerable revenues from unacceptable

business activities. Investment in the stocks of such companies is allowed by contemporary scholars. When 8% of the total income of the company is gained by interest, the fund earning will be purified if 8% of every dividend payment is given away.

There is no consensus regarding cleansing capital gains because some scholars do not believe it causes non-compliance since the change in the stock price does not really reflect interest; others conversely suggest nevertheless purifying earnings made from selling shares because it is fair and safer (Usmani, 2002).

The process of purification can be conducted before any distribution of income is carried out by the fund manager, or investors may also be informed on necessary financial ratios to purify their earnings on their own.

The income can also be purified by paying *zakah*, which is a form of charity paid on personal wealth. It should be paid when an individual's wealth exceeds a minimum amount called *nisab*, if this money is held idle for one lunar year. Depending on the type of asset, *zakah* is 2.5 per cent for most forms of monetary wealth and earned income (Al-Qaradawi, 1999). However, one of the continuing controversial issues is how to calculate *zakah* on investment profits (DeLorenzo, 2000).

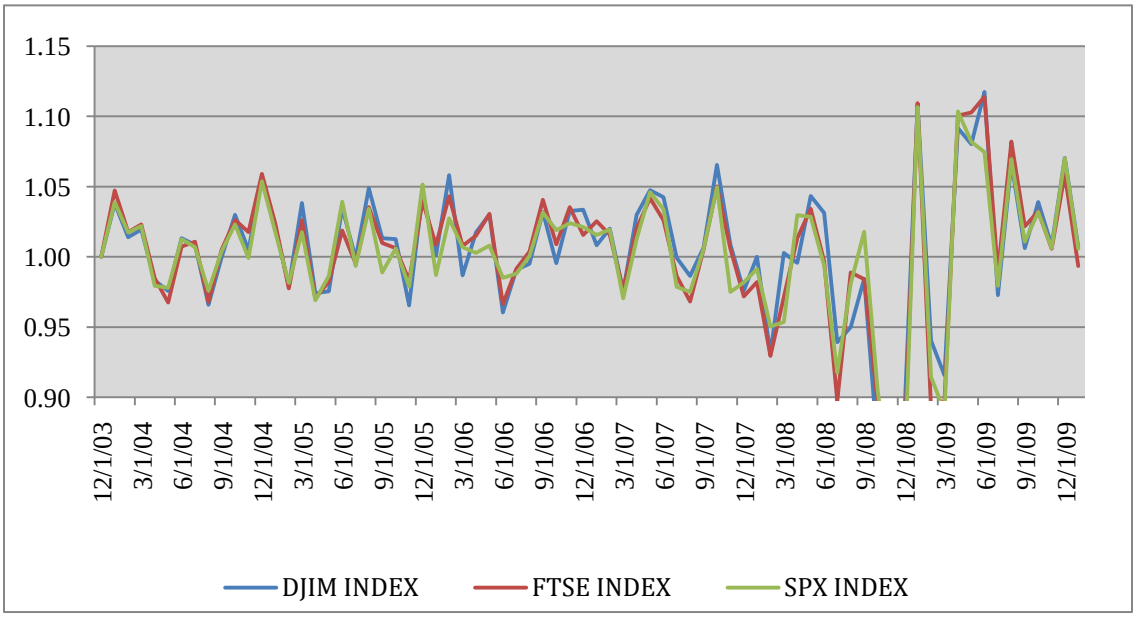
3.7.2. History, Developments and Trends

Failaka (2007) states that the Islamic mutual fund industry is relatively new, having only been established for 30 years. The Amana Income Fund was the first Islamic mutual fund to appear in the US in June 1986. By 2010, globally there were 580 Islamic mutual funds. Elfakhani and Hassan (2005) noted that various Islamic funds were launched to take advantage of a bull phase and profitable investment climates in the developed markets being experienced in the late 1990s.

According to Hayat (2006), the most common type of Islamic fund is the open-ended fairness fund, with medium- to long-term growth. Additionally, the Dow Jones Islamic Market Index (DJIMI) and the FTSE Global Islamic Index launched the first example of various Islamic touchstones. The Dow Jones index includes 2000 *Shariah*-compliant fairness listed companies involved in the broader Dow Jones World index, while the

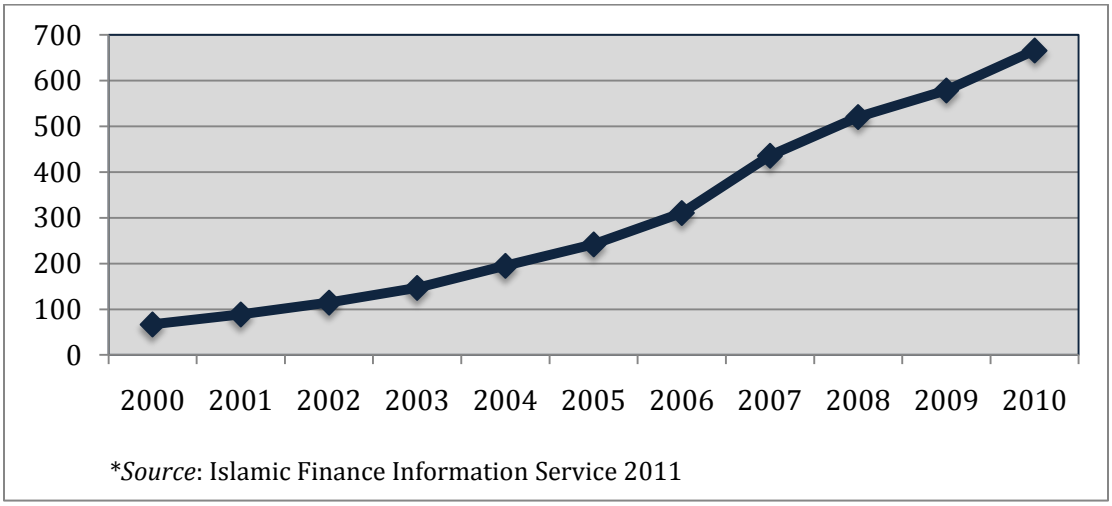
FTSE global Islamic index includes 1000 *Shariah*-compliant fairness companies involved in the FTSE All World Index. In terms of regional investments, all indices are diversified, but the Dow Jones index is larger compared to the FTSE Global Islamic Index and more exposed to US markets. Figures 3.1 give a brief description of the performance of the DOW Jones Islamic Market Index and the FTSE Global Islamic Index compared with the S&P 500 traditional index from 2003 till 20010

Figure 3.1. Performance of Indexes for the Period (2003 – 2010)



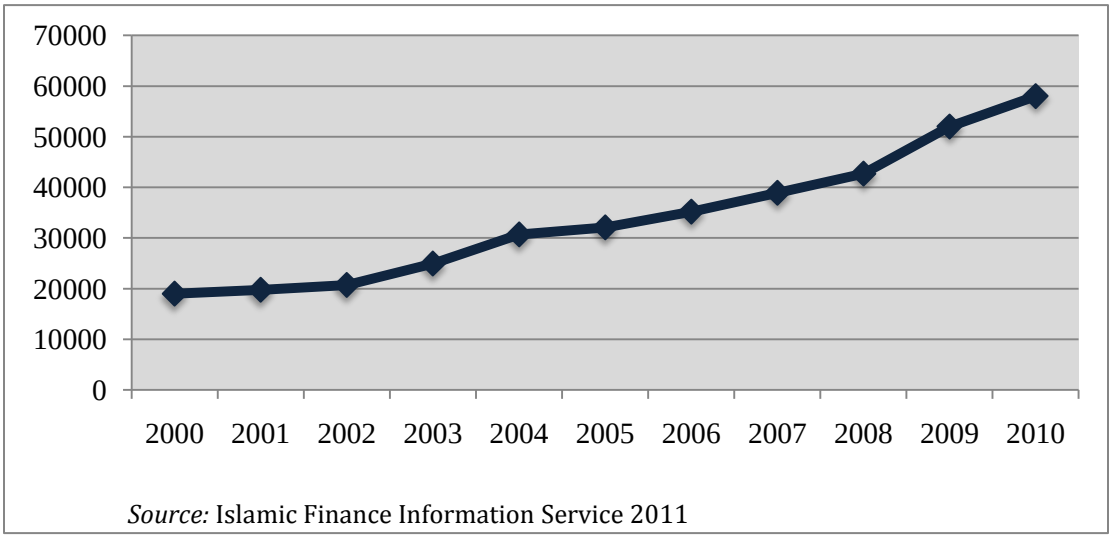
Figures 3.1 describes the recent trends in the Indexes. Figure 3.2 depicts the growth in the number of Islamic mutual funds from 1996 until 2010: an increase from 29 in 1996 to 580 in 2010, with substantial growth in the late 1990s. Figure 3.3 shows the total asset size of the global Islamic mutual fund industry between 1996 and 2010. There was nigh on 50% uplift in in industry asset size between 2004 and 2005, and, although there was a fall in 2008, the industry recovered quickly and had climbed to $58 billion by 2010. Generally, the upsurge of energy prices in the Gulf States was clearly reflected in the growth in the Islamic mutual fund industry from the mid-2000s onwards.

Figure 3.2. Number of Outstanding Islamic Mutual Funds (2000 – 2010)



**Source*: Islamic Finance Information Service 2011*

Figure 3.3. Size of Islamic Mutual Fund Industry (2000 – 2010)



Source: Islamic Finance Information Service 2011

3.8. CONCLUSION

This chapter outlines the role of the mutual fund industry as an investment vehicle in the financial system and reviewed the key features of the mutual fund industry. Since it was first established in the UK and the US, the mutual fund industry has continued to grow significantly. In addition, governing bodies are satisfied that the mutual fund

environmental and operational activities are transparent and have not violated regulations. There is a broad range of mutual funds, with features including equity, bond, money market and other types of funds. As mentioned in this chapter, although the largest population is equity funds, every type of fund has its own risk and return features.

The chapter next discusses the development of the Islamic mutual fund industry. Since it was founded in the 1980s, this industry has grown to show an overall asset value of more than $58 billion in 2010. This has been predominantly attributed to the growth in Islamic banking and insurance but it also driven by the growth in all aspects of the Islamic finance industry in general. The following chapters focus on the features of the Islamic mutual fund industry, starting with a literature review based on those studies that examine the performance of mutual funds.

CHAPTER 4

PERFORMANCE MEASUREMENT IN MUTUAL FUNDS: THEORIES AND MODELS

4.1. INTRODUCTION

The previous chapters provide foundational issues in mutual, ethical and Islamic mutual funds. Building on this material, this chapters aims to discuss and survey empirical models and related empirical studies and in particular performance measurement issues.

The literature on mutual fund performance measurement goes back to the very beginning of asset pricing theory, if not further (Chen & Knez, 1996). Since the early formal measures of Jensen (1968), Sharpe (1966) and Treynor (1965), numerous new performance measures have been proposed. For example, there are the Arbitrage Pricing Theory (APT)-based measures of Connor and Korajczyk (1988) and Lehmann and Modest (1987), the period-weighting measures of Grinblatt and Titman (1992), and the intertemporal marginal rates of substitution-based measures of Glosten and Jagannathan (1994). From a performance evaluator's perspective, this array of measures undoubtedly offers a rich choice set but at the cost that it makes the selection of a suitable methodological approach difficult. As such, there is no general theoretical framework that allows the evaluator to examine these and many other proposed measures (Chen et al., 1987; Lehmann & Modest, 1987).

The essence of performance evaluation is to measure the value of the services provided by the portfolio management industry and to investigate whether a fund manager positively assists in enlarging the investment opportunity set faced by the investing public and, if so, to what extent (Otten & Bams, 2004). The relatively large number of mutual fund performance models creates a potential problem for both academics and practitioners as to what model to use for performance measurement (Otten & Bams, 2004).

Based on this initial discussion, this chapter provides a comprehensive assessment of existing mutual fund performance theories and models.

4.2. MARKOWITZ'S PORTFOLIO THEORY

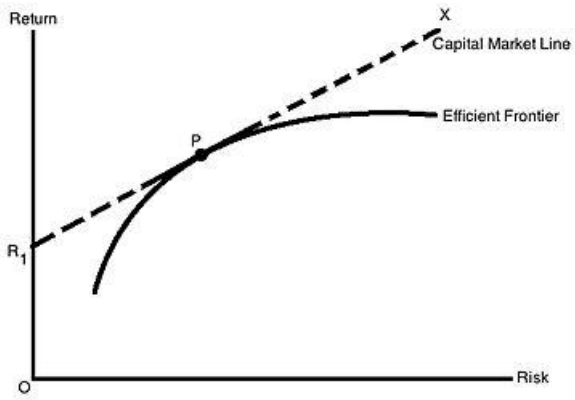
Modern portfolio theory has largely developed from the works of Harry Markowitz. who was the first academic to explain how a rational investor makes a portfolio selection in the case of uncertain conditions as back as in 1951. The belief prevalent at the time was that when an investor diversifies into all the securities that may provide the highest expected return based on the premise that returns of different assets in a portfolio are inter-correlated, return is maximised. Markowitz, however, rejected this conventional belief outright. He observed that with such conflicting results, we cannot claim that the risks that may exist for a portfolio task may be eliminated by such diversification. Markowitz (1951) argued that a portfolio's variance caused the variability of the portfolio return and that only when securities with high covariance are avoided, can the risks of a portfolio's variance be reduced. So, it is of paramount importance to consider how every asset in the portfolio co-moves with others which contribute to the overall portfolio's final risk.

Markowitz (1951) proved that the superiority of diversification within the mean-variance framework is obtained only when securities with a low covariance level are combined. Furthermore, the portfolios that offer the highest expected return cannot be simply considered the best (or most efficient) portfolios for a risk-averse investor; rather, efficiency is attained when the portfolio for a given level of variance gives the most return or the lowest variance for a given level of return. Therefore, it was possible to formulate the 'efficient frontier' for the first time by clearly establishing a link between the portfolio return and the risk being assumed to generate this return. The efficient frontier is a graphical presentation that shows the combination of all portfolios of risky securities that are mean-variance efficient.

Tobin (1958), in his influential work, further extended the modern theory of portfolio selection. He showed that by including access to instruments that are not risky, an investor can also attain an optimal portfolio by combining the riskless assets with the risky ones. The 'Separation Theorem', which refers to the distinction that is made between the investment in risk-free securities and risky securities, makes the investor

capable of determining an optimal portfolio that is an amalgamation of riskless and risky securities on Markowitz's efficient frontier. What is meant by 'best' portfolio is shown in Figure 4.1: the portfolio which is located at the point where the line passing the riskless securities (R_1) is tangent with the curve of the efficient frontier. The concave curve that touches the upward sloping Capital Market Line shows the Efficient Frontier in the figure, while the capital market line (*CML*), which represents all possible efficient portfolio combinations between riskless and risky securities, is formed by the $R_1 - X$ line. Point *P* on Capital Market Line, where the Efficient Frontier tangents to the latter, designates the best and most dominant portfolio of all the efficient portfolios. The provided findings trigger further studies within the mean-variance framework about the valuation of financial assets. The findings of the study also provide the establishment that is necessary in order to formulate all the valuation models of mean-variance-related assets, one of the most popular of which is the capital asset pricing model (*CAPM*) theory.

Figure 4.1: Efficient Frontier with Risk-Free Rate



4.3. THE PORTFOLIO THEORY AND THE CAPITAL ASSET PRICING THEORY (*CAPM*)

The capital asset pricing model (*CAPM*), which is a highly admired theory in financial economics, is a single-index asset pricing equilibrium model that was separately developed by Sharpe (1966) and Lintner (1965). As a powerful standard, *CAPM* is used to measure the value of financial assets and capital budgeting projects, and it is also used to measure fund managers' performance. Before the emergence of *CAPM*, the evaluation of financial assets was largely based on their individual return and there were some relative measures such as fund ranking techniques that tested the performance of investment funds because there was no specific market model which could be applied as a standard (Jensen, 1968). Hence, the emergence of *CAPM* satisfied the real need for a benchmark to compare financial assets and fund managers' performance.

What has made the model so appealing in an academic setting is that the model was derived from the expected-utility theory by Markowitz (1952), who, after working on portfolio selection theory, had extended the works on utility theory by Bernoulli (1954) and von Neumann and Morgenstern (1944) as well as the theory of general equilibrium involving risks by Arrow and Debreu (1954) and Dimson and Mussavian (1999).

The theory attracts general investors and fund managers because, although it is simple, it powerfully interprets the risk which is the most crucial factor affecting financial assets. All forms of risks available in an asset are reduced by the model through distinguishing between diversifiable and non-diversifiable risks. The *beta* (β), which is the final product of the reduction, measures non-diversifiable risks, hence, compared to other asset valuation models, it is easily understandable by both investors and fund managers. Nevertheless, the theoretical and empirical validity of *CAPM* has been thoroughly tested since its discovery by numerous papers including Fama (1968), Black (1972), Fama and MacBeth (1973), Blume and Friend (1973), Merton (1973), Dybvig and Ross (1985), and Gibbons, Ross, and Shanken . (1989). It was also subjected to intense academic debates by Friend and Blume (1970), Roll (1977), Roll and Ross (1980), Green (1986), Grinblatt and Titman (1992), and Fama and French (1992). In spite of being highly controversial,

CAPM has remained the most dominant single-index model in financial economics theory.

Based upon Markowitz's (1952) efficient frontier and Tobin's (1958) separation theorem, the *CAPM* principally depicts a linear relationship theory between return and risk (or mean-variance relationship). The following assumptions are made in regard to this linear relationship:

(i) Not willing to take risk, the investor would choose an efficient portfolio so that their end-of-period expected utility would be maximised (the marginal utility decreases as wealth increases);

(ii) One-period investment horizon is the same for all investors;

(iii) Portfolio performance is measured solely based on mean and variance (return and risk) of the investors, and, regarding the distribution of the end-of-period future returns, they all have homogenous expectations;

(iv) Friction, like the absence of taxes or transaction costs, does not exist in the trading of financial assets, and the financial market absorbs new information efficiently;

(v) All investors have the right to invest in any financial asset as they wish and also to borrow or lend any amount of money at the rate similar to risk-free rates.

According to *CAPM*, under these assumptions, *i*, the expected return for an asset or portfolio, is related to the expected excess return of the market portfolio, which is adjusted for the systematic risk of the asset or portfolio and is commonly represented as:

$$E(\tilde{R}_{it}) = R_f + \beta_i [E(\tilde{R}_{mt}) - \tilde{R}_f] \qquad (4.1)$$

In this formula, R_i is the expected excess return for security *i* at time *t*. $\tilde{R}_{mt}$ is the excess expected return on a proxy for the market portfolio at time *t* , R_f is the return on a risk-free asset which represents the lending or borrowing rate, and β_i, is the measure of the asset's systematic risk. The following shows how to calculate it:

$$\beta_i = \frac{Cov\,(\tilde{R}_i, \tilde{R}_m)}{\sigma_m^2} \qquad (4.2)$$

where, *cov* represents the covariance that exists between the return on the asset and that on the market, and σ_m is the variance of the market returns.

Equation 4.1 shows that the return and risk of an asset is represented by a linear relationship; in such a case, the *CAPM* asserts that the only contributor to the variability of return is the asset's beta coefficient, β, because diversification eliminates the other forms of risks that may have arisen unsystematically. This rather appealing insight has significantly simplified the process of portfolio selection. Additionally, it permits investors and fund managers to focus on a single risk factor when diversifying their investment. The main focus of earlier literature on *CAPM* was on testing the sturdiness of the theory and its application for portfolio performance measurement.

However, since the model was developed based on specific assumptions, testing the validity of the assumptions in order to specify their accuracy in representing the real world situation has been the core focus of many studies. For instance, Black (1972) focused on analysing the validity of the assumption of using the risk-free rate as the borrowing and lending rate; Fama and MacBeth (1973), as well as Blume and Friend (1973), explored the assumption of the perfect capital market; Merton (1973) and Mulvey *et al.* (2003) examined the robustness of the *CAPM* in a multi-period setting rather than the single-period horizon assumption; the impact of transaction costs was studied by Goldsmith (1976); Dybvig and Ross (1985), Ippolito (1989) and Elton *et al.* (1996) analysed the effect of information asymmetry; and Longstaff (2001) explored the impact of liquidity constraints on the *CAPM* valuation. Several studies have investigated the development of other *CAPM* variants by relaxing certain assumptions to better represent the real world situation. The findings of some of these studies are discussed below.

4.3.1. Tests of the CAPM and CAPM Variants

Among all the *CAPM* assumptions, the most contentious one is the assumption of the risk-free rate as a suitable substitute for the borrowing and lending rate. Black (1972) stated that the assumption is not an appropriate estimate for many investors, and one feels that there would be a substantial change in the model if this assumption were dropped (Black, 1972). In cases where there is a risky situation for securities, Black (1972) proved that the original *CAPM* equation needs to be adjusted and further proposed that the zero-beta *CAPM* can act as an alternative equation. Merton (1973), who tried to settle the *CAPM* assumption by asserting that all investors have a single-period investment horizon, argued that the utility function of a risk-averse investor is not influenced just by his own wealth, confined in a single time period, but that the overall state of the economy that expands in a multiple-period horizon also has an effect. The argument for adapting to a multi-period model is supported and further strengthened by Mulvey *et al.* (2003). They argued that *CAPM*, as a single-period model, does not consider the portfolio return variability and risk. Portfolio return variability and risk are caused by a dynamic portfolio strategy such as portfolio rebalancing activities that are taken on by fund managers. Mulvey *et al.* (2003) believed that long-term investors will benefit more from a multi-period model than single-period mean-variance (*MV*) models. The Intertemporal *CAPM* (*ICAPM*) is a variation of *CAPM* that accommodates a multi-period setting. It was developed by Merton (1973) to make the *CAPM* more adaptable to a longer time period. Later on, *ICAPM* was extended by Breeden (1979), who introduced 'Consumption' *CAPM* (*CCAPM*). This is a single-*beta* factor of multi-period *CAPM* and is distinguished from the multi-beta factor of Merton's *ICAPM*. While in the *ICAPM*, market return is used to estimate the beta; this is done based upon an aggregate consumption flow for *CCAPM*.

Goldsmith (1976) analysed the impact of transaction costs and concluded that in the case of an increase in wealth, investor security will be guaranteed, but when there are transaction costs incurred, the investor, by investing more in risky assets, will adjust his portfolio composition. The results of this study, therefore, imply that the portfolio decision process of an investor is influenced by transaction costs.

There is further evidence provided for the significance of transaction costs. Analysing the persistence of mutual fund performance, Carhart (1997) claims that, "the investment costs of expense ratios, transaction costs and load fees all have a direct, negative impact on performance" (Carhart, 1997). While the original *CAPM*'s assumption simply ignores transaction costs, Carhart's findings indeed suggest the opposite. Plenty of studies have tested the *CAPM* assumption regarding the efficient absorption of information by the market.

To apply the *CAPM* assumption, candidates will usually either focus on reviewing the performance of individual investment funds or portfolio managers, who are generally analysed to see if the fact that they have access to confidential information, which is not normally available to general investors translates into better performance. Jensen (1968), who was the first to apply the *CAPM* model, analysed 115 mutual funds and concluded that generally fund managers could neither outperform the market nor even beat a simple buy-and-hold strategy. On the contrary, Dybvig and Ross (1985) showed that fund managers who were in possession of superior information were able to achieve superior performance. The apparent deviation in the *CAPM*'s security market line (*SML*) is demonstrated in this study. This deviation occurs when the performance of fund managers with superior information cannot be accurately plotted on or around the *SML*. Earlier findings showed that mutual funds underperformed the market index (Jensen, 1968; Sharpe, 1966).

Working on the impact of information cost on capital market efficiency, Ippolito (1989) proved the efficiency of mutual funds in their trading and information gathering activities and argued that fund managers do indeed earn superior returns which are sufficient to cover the higher fees charged to their investors. These findings were challenged by Elton *et al.* (1996), who highlighted that the performance of non-S&P (Standard & Poor's) stocks had not been accounted for in Ippolito's sample of mutual funds. Elton *et al.* (1996) continued that Ippolito's analysis would produce similar results to those of the previous studies once the returns on non-S&P stocks were included. Whatever the outcome, *CAPM* has obviously been challenged extensively and powerfully on the true

merits of an assumption of an efficient absorption of information by the market. In turn, such challenges have raised serious doubts about the validity of the *CAPM* itself.

4.3.2. Critics of CAPM

There have been many criticisms on the validity of the *CAPM*, the most important ones being the issues concerning the appropriate proxy to represent the market portfolio and also the assumption that the beta alone is sufficient to explain the variability of securities return. The discussion of the major findings related to this debate follow.

CAPM validity was not notably challenged and criticised until the works of Roll (1977) emerged. Blume and Friend (1973) showed that *CAPM* is suitable for valuing common stocks but not for corporate bonds, so they concluded that *CAPM* cannot be regarded as the pricing equilibrium for all financial benefits. The *CAPM* was derived from Markowitz's portfolio theory and the difficulty of its implementation resulted from three obstacles: firstly, estimating the type of input data necessary is inherently difficult, secondly generating an efficient portfolio is highly costly and time-consuming and, thirdly, educating portfolio managers on the relationship between return and risk expressed in terms of co-variances and standard deviations is a demanding task (Elton *et al*., 1996).

The validity of the pricing equilibrium was distrusted by the influential work of Roll (1977), to such an extent that the theory was relegated to a defensive position. Previous studies all focused on testing the restrictive assumptions of *CAPM*. However, pointing to the high vulnerability of the model to misspecification error, Roll (1977) argued that the *CAPM* may not be testable, as it is not possible to test the theory appropriately and conclusively. He also pointed out that, while the *CAPM* is testable in principle, previous findings have not developed any correct and unambiguous test of theory. Moreover, he also is sceptical about the likelihood of successfully developing such a test in future (Roll, 1977).

Improper treatment of *CAPM* parameters, that is, the market portfolio (m) and the beta (β), produce serious errors in the output of *CAPM* (Roll, 1977). Roll contended that it is

not possible to determine whether the market portfolio (*m*) is mean-variance efficient, a prerequisite condition of the theory, unless *all* available assets in the market (both tangibles and intangibles) are included in the market portfolio (*m*) in Equation 4.1. Consequently, following the convention by representing the market portfolio (*m*) in the equation through the use of a proxy portfolio or market index, the *CAPM* formula will not yield definitive results when the true market portfolio (*m*) is actually unknown. This is because computations using the proxy portfolio might provide outcomes satisfying all the theory's assumptions in cases where the proxy portfolio is mean-variance efficient, even if the true market portfolio (*m*) is, in fact, not mean-variance efficient.

In examining the correlation between a proxy and a true market portfolio, Shanken (1987) found that a proxy does not fully represent a true market portfolio, thus there is an obvious danger of using a proxy portfolio in the testing of the *CAPM*. A joint hypothesis between the validity of the *CAPM* and the efficiency of the proxy portfolio is effectively established by Shanken's analysis, and his findings suggest that either the *CAPM* theory is invalid or the proxy has been incorrectly specified. Shanken (1987), hence, concluded that testing of the *CAPM* by the use of a proxy market to replace the true market portfolio (*m*) would be valid only if the proxy portfolio were an unambiguous representative of the true market portfolio. *CAPM* is extremely sensitive to the use of a proxy portfolio or market index, and this has been supported by studies such as Green (1986), Lehmann and Modest (1987), and Grinblatt and Titman (1992).

Roll (1977) is one of the staunchest critics of the idea that the beta alone may account for the variability of asset return. *CAPM*'s assumption that beta (β), which represents only non-diversifiable or systematic risks, affects an asset's return is strenuously challenged by Roll (1977). He asserted that neither expected return nor beta is independently testable, since the linear relationship between them is derived from the assumption of the market portfolio's mean-variance efficiency. Therefore, a joint test as an empirical test on the model concerns the validity of the linearity relationship between return and beta on the one hand, and the mean-variance efficiency of the market portfolio on the other hand. Estimating parameters by using historical (ex-post) time series data is the other critical problem with beta. Even if the informational efficiency of the stock market is proven, at

least in the weak form, securities' returns are not expected to be correlated periodically because in a scenario where such a correlation exists, the rejection of the notion of an efficient market would therefore be necessary. Additionally in turn, the *beta* estimated from not-correlated ex-post data used in an ex-ante model will therefore yield a very dubious estimate.

Many studies have rejected the view that beta alone is a sufficient measure of risks, and have collectively provided compelling evidence showing that various micro- and macro-economic factors affect asset returns. This applies to both quantitative fields like stock markets, economics and financial data and also in qualitative fields like management efficiency, marketing strategy and business policy. To provide supporting evidence for corroborating the insufficient nature of beta as the only factor affecting asset returns (Fama, 1996), we can refer to the observed anomalies in stock returns such as the price-earnings ratio effect (Basu, 1977; Ball, 1978), the 'size effect' (Banz, 1981), 'the leverage effect' (Bhandari, 1988), and the 'book-to-market-equity ratio' (Fama and French, 1992). Pendaraki *et al.* (2005) recently introduced a new methodology for the construction and selection of a portfolio, which is based on the MCDA (multi-criteria decision aid) method.

Supporters such as Greco, S. *et al. (1999) and C.* Zopounidis and M. Doumpos (2002) of the new model argued that it takes into account the multi-dimensional nature of risks and, since it does not assume that variance (or standard deviation) is the only source of variability (risk) to the return of an asset, it is purportedly more accurate than the traditional linear based models. Both the original standard model of *CAPM* and its other variant models have faced many criticisms however, due to sharing similar properties with the standard model (Shanken, 1987). For instance, while in a theoretical perspective the *ICAPM* is believed to be significant, in empirical testing or financial decision-making, it is not so tractable (Breeden, 1979). Fama (1996) argued that the mathematical complexity of *ICAPM* actually supported the relative attractiveness of *CAPM* as the results of *ICAPM* lack a simple intuitive analysis.

To summarise, the various empirical limitations inherent in the *CAPM*, which have made the single-index model an inefficient predictor for future expected return, have been widely investigated. To compensate for these shortcomings, a multi-index equilibrium model, whose advantage has been tested by Gibbons *et al*. (1989), has been introduced as a replacement to the single-index model. Arbitrage pricing theory (APT), which was developed by Ross (1976), is the most popular multi-index model and its nature will now be discussed in the following section.

4.4. THE PORTFOLIO THEORY AND THE ARBITRAGE PRICING THEORY (APT)

Although Gehr (1975; as cited in Roll & Ross, 1980) initially discussed the prospect of using a multi-factor pricing model, in which he tried to explain the variability of asset return, it was the seminal works by Ross (1976, 1978) that led to the development of the Arbitrage Princing Theory or *APT*, which is a testable form of the multi-index asset pricing model. What is undeniable is the practicality of *APT* as an alternative to the *CAPM* in light of the various shortcomings of the single-index model. The assumption of *APT* is that the random return on asset *i* (R_i) satisfies the following *K*-factor linear model as shown below:

$$R_i = E_i + \beta_{i1}\delta_1 +_{\dots} + \beta_{iK}\delta_K + \varepsilon_i i = 1, \dots, N \qquad (4.3)$$

where $E_i$is the expected return on asset *i*, the $\delta_K$are the mean zero common factors, the β_i measures the systematic risk of the common factor δ_K, and the ε_i is the noise term or unsystematic risk component of the common factor assumed to be uncorrelated with the δ_K and with each other (see Roll & Ross, 1980; Shanken, 1987).

Viewed retrospectively, it seems that *APT* is simply "a multi-beta interpretation of the *CAPM*" (Shanken, 1985: 1189). This argument, raised by Shanken (1985), is on the use of the *CAPM* intuition which is related to the linear nature of the relationship between asset returns and beta in the *APT*. He asserted that this had exposed the multi-index equilibrium model to a similar limitation faced by the *CAPM*. Therefore, if *CAPM* is rejected by any test based on a joint hypothesis between the linearity of asset return-beta

relationship and also the market portfolio efficiency, *APT* would also logically have to be rejected. He develops the argument further and as such it would be helpful to briefly underline the differences between the *CAPM* and *APT*.

Merits given on the factor variables of the *CAPM* and the *APT* differentiate them from each other. Based on the presupposition that the universe of an asset's risk factors can be reduced into only two categories of systematic (non-diversifiable) and unsystematic (diversifiable) risk, the *CAPM* theory essentially emphasises the relationship between (i) the covariance of asset returns, (ii) a certain market portfolio, and (iii) this result in the beta alone as the sufficient measure for risk. In contrast, what *APT* theory does is to emphasise the covariance of asset returns and certain pre-selected common factor variables which are believed to have a role in affecting asset returns. Therefore, *APT* has essentially been developed into a multi-factor model, allowing the incorporation of more than one factor in the return equilibrium model (Dimson & Mussavian, 1999; Roll & Ross, 1980; Shanken, 1987). The following theoretical differences between the *CAPM* and the *APT* are mentioned by Roll and Ross (1980):

1) Generating process as a first principle, the *APT* is based on a linear return, and no utility assumptions are required beyond monotonicity and concavity;

2) It is possible to apply the *APT* either in single-period or multi-period investment settings, and the condition that the market portfolio must be mean-variance efficient is not so important whilst this is not the case for the *CAPM* (Roll & Ross, 1980).

It is argued that the *APT* is more testable than the single-index model and that it is superior to it due to the fact it benefits from fewer restrictions than the *CAPM* (Roll & Ross, 1980; Grinblatt & Titman, 1992; Chen *et al*., 1986; Fama & French, 1992; Fama, 1996). In replicating real world situations, *APT* is superior to *CAPM* due to its ability to take account of multiple systematic risks. In addition, *APT* also rejects the notion proposed by *CAPM* that the variability of asset returns can sufficiently be explained by systematic risk, or beta, alone.

Shanken (1987) argues that *APT* is advantageous over the *CAPM* in a multi-beta setting, as there is overwhelming evidence stating that asset returns are not just affected by the market's beta. Among such studies is research by Fama (1996), who believed that when estimates of expected returns are required, multi-factor models should be considered in research applications. Whilst previous studies unavoidably highlight that the *CAPM* has attracted more criticism than the *APT* this does not, however, mean that there is are no flaws in the multi-factor model.

What and how many of the common factors (δ) are supposed to be required in the model is probably the primary limitation in the process of formulating the *APT* (Elton & Gruber, 1997). The *APT* has been proven as a practical alternative to the *CAPM*, however, this theory cannot be seen to account for features like identifying the relevant common factors or how many factors are needed to construct an appropriate *APT* model. Several studies have attempted to determine the common factors. Roll and Ross (1980) used the factor analysis method to identify them, but their study was challenged by Shanken (1987). He contended that, since statistical correlations are solely used in the method, the study therefore lacks significant economic interpretation rendering it inadequate.

Analysing a set of macroeconomic variables, Chen *et al.* (1987) observed systematic factors like industrial production and also changes in the risk premium, the yield curve and the inflation affect asset returns. What was interesting about their findings was that stock market indices, real per capita consumption and changes in oil price do not systematically affect asset returns. Fama and French (1992) identified the common factors through carrying out a cross-sectional analysis on firm characteristics using a portfolio of stocks.. They found that securities' returns are mostly affected by size and book-to-market equity. The findings of the study confirm previous findings about the significance of firm characteristics as the determinant of stock returns. Examples of stock returns are given as size (Banz, 1981), leverage (Bhandari, 1988), and price-earnings ratio (Ball, 1978; Basu, 1977).

As a final point, evidence provided by the proponents of the *APT* shows the superiority of the multi-factor model to the single-factor model because it is stable enough to capture

more than one systematic risk factor in the pricing equilibrium. In spite of this, the construction of the multi-factor model is littered with difficulty, such as how to select the appropriate factors as well as how to correctly determine the optimal number of factors that are to be included in the *APT* model.

4.5. PORTFOLIO THEORY AND THE EFFICIENT MARKET HYPOTHESIS (EMH)

The purpose of this section is to discuss how the portfolio theory fits into the concept of efficient market hypothesis (*EMH*), development of which started with the works of Fama (1970) but has remained an evolving animal which is still evolving today and now represents an integral part of the modern financial theory. What we principally mean by *EMH* is the notion that securities' prices completely reflect all available information in the market and the EMH purports that the adjustment of prices to the arrival of new information happens instantaneously.

The intuition behind the *EMH* is simple, but very significant. Securities' prices are believed to trade at their fair or intrinsic value if *EMH* holds. Consequently, prices move in a random fashion over time which makes them inherently unpredictable, and this prevents investors from earning an abnormal profit by exploiting trading strategies intended to manipulate the historical price trend.

The *EMH*, in its extreme form, implies that all trading techniques based on fundamental analysis or technical analysis or any of the other investment strategies of fund managers are destined to fail. According to Kendall and Hill's (1953) reports, securities prices were believed to fluctuate randomly without exhibiting significant correlation between time periods before the works of Fama (1970). By formalising the concept of market efficiency and developing a way to test the *EMH*, he contributed significantly to the theory of finance. The three levels, namely the 'weak form efficiency', the 'semi-strong form efficiency', and the 'strong form efficiency' are the categories created by Fama (1970) in regard to market efficiency. As such, in the context of portfolio management, the test of *EMH* can be regarded as a strong form of the test of market efficiency, and the

performance of portfolio or fund managers over the longer term is therefore a natural area to focus upon to test its merits.

In order to measure fund managers' performance, previous works on *EMH* applied the *CAPM* as their yardstick. Studies by Fama and MacBeth (1973), Kon (1983), Chang and Lewellen (1984) and Henriksson (1984) revealed the inability of fund managers to predict or capitalise on stock price movements, and this finding is in line with the *EMH*. Looking at the literature, there were studies by Grossman (1976) and Grossman and Stiglitz (1976) that showed that if information were costly to obtain, it is probable that informed investors would trade at a different price level from that of uninformed investors in order to compensate the informed investors for the cost of obtaining the information. The findings of these studies were extended by the works of Ippolito (1989). He found that fund managers could indeed surpass index funds, and, although this finding is consistent with the two studies, it is in contrast with earlier studies and runs counter to the *EMH*.

Re-analysing the same sample, Elton *et al.* (1996) challenged Ippolito's (1989) claim. They argued that his findings contain sample misspecification error because non-index securities' returns are poorly treated. The validity of the *EMH*, and principally its strong form version, was disputed by some studies in the 1990s. Researchers using more comprehensive databases and analysis techniques, incorporated the impact of trading microstructure like transaction costs, taxes, management fees and fund flows, and were thus able to analyse mutual fund performance in greater detail. Autocorrelation of portfolio return was investigated by Mech (1993). Results showed that transaction costs cause delays in price adjustment so affect return. The *EMH* stated that securities' prices adjust immediately so that they completely reflect all available information, but this is in direct contrast with Mech's (1993) findings. There is substantial evidence challenging the strong form version of the *EMH*, which is related to studies on the persistency of mutual fund performance (Carhart, 1997; Hendricks et al., 1993; Grinblatt & Titman, 1992).

Notwithstanding this, there remain no irrefutable issues regarding evidence against the *EMH*. For instance, the number of studies showing mutual funds generally underperform the market, and hence supporting the *EMH*, is outweighs those showing an ability of fund managers to outperform the market, and therein serve to disprove the *EMH*.

The limitation in the standard asset pricing model used in the analysis of the *EMH* probably prevents researchers from reaching a clear-cut conclusion. Additionally, any test of the EMH is basically a joint hypothesis test on both the validity of the *EMH* and the validity of the equilibrium model that is applied to carry out the test. Since there are many contradicting results on *EMH*, it is a nigh on impossible task to definitively recognise whether the observed anomalies in stock returns and the evidence of consistently outperforming fund managers are a sign of invalidity or the result of certain flaws in the existing asset pricing models (Ball, 1978). However, concerning the fund managers' performance, there is overwhelming evidence (see Carhart, 1997; Dimson and Mussavian, 1999; Hendricks et al., 1993; Grinblatt & Titman, 1992; Mech, 1993) indicating their low average performance and this supports that the strong form of the EMH generally does hold.

4.6. PORTFOLIO PERFORMANCE MEASUREMENTS

Various portfolio performance valuation methods have been proposed, which can be categorised into two methods: those based on the mean-variance criterion and those based on the non mean-variance criterion. Both methods are discussed in the following sections.

4.6.1. Portfolio Performance Measurements Based on the Mean-Variance Criterion

Before the discovery of the *CAPM*, performance ranking techniques were mainly used to analyse mutual fund performance because there was no standard test available for comparing mutual fund performance. The *CAPM* enabled researchers to invent an absolute measurement value to evaluate mutual fund performance. There are three widely used portfolio performance measures derived from the *CAPM* equation that are risk-adjusted. They include the Treynor Index (Treynor, 1965), the Sharpe Index (Sharpe, 1966), and the Jensen Alpha Index (Jensen, 1968). A succinct description of the

derivation process is provided by Friend and Blume (1970). When the *CAPM* assumptions completely hold, the financial market reaches a state of stability with the individual asset or portfolio (*i*) poised to trade at its fair value price, which satisfies the general ex-ante *CAPM*, as shown in Equation 4.4:

$$E(\tilde{R}_i) = R_{f\,+}\,\beta_{\text{i}}\,[E(\tilde{R}_m) - \tilde{R}_f] \qquad (4.4)$$

Where $E(\tilde{R}_i)$the expected is return on security *i,* at time *t* R_{ft} is the risk free rate of return on US t-bill. β_{i} in this case is the CAPM beta for the security *i*, $E(\tilde{R}_m)$ is the excess return of the market portfolio, *m*

However, pondering the extreme limitations that the *CAPM* assumptions have imposed, there is the possibility of violations of one or more of the assumptions, and, if this occurs, there will be disequilibrium in the financial market. To reflect the disequilibrium, Equation 4.4 is rewritten as follows:

$$E(\tilde{R}_i) = R_{f\,+}\,\beta_{\text{i}}\,[E(\tilde{R}_m)n_i - \tilde{R}_f] \qquad (4.5)$$

Where ηi is the measure for disequilibrium.

Providing that ηi equals zero, the asset or portfolio is in equilibrium. The expected return of the asset or portfolio is larger than the return anticipated by the *CAPM* equation however if ηi is greater than zero; therefore, it indicates the undervalued position. Similarly, the expected return of the asset or portfolio is lower than the return anticipated by the *CAPM* equation if ηi is less than zero, so this implies the overvalued position. The Jensen Alpha Index is fundamentally derived from Equation 4.5, replacing ηi with an alpha (α) in Jensen (1968), but applying similar intuition. It is rewritten as follows:

$$r_{pt} = \alpha_p + \left[r_{ft} + \beta_p(r_{mt} - r_{ft})\right] \qquad (4.6)$$

Dividing both sides of Equation 4.5 with βi will yield the Treynor Index and the outcome is:

$$\text{Treynor Index} = \frac{E(R_i - \tilde{R}_f)}{\beta_i} = \frac{n_i}{\beta_i} + [E(\tilde{R}_m)n_i - \tilde{R}_f] \quad (4.7)$$

The Treynor Index is symbolised by the left hand side of Equation 4.7 above. When ηi is zero, the Treynor Index will be $[E(\tilde{R}_m)n_i - \tilde{R}_f]$ which, sequentially, is free from the systematic risk, β. The measure is essentially similar to the left hand side of the equation to obtain:

$$\frac{n_i}{\beta_i} = \frac{E(R_i - \tilde{R}_f)}{\beta_i} - [E(\tilde{R}_m)n_i - \tilde{R}_f] \quad (4.7^*)$$

Hence the Treynor Index can be interpreted as the measure of excess return per unit of systematic risk.

Likewise, the Sharpe Index is essentially derived from equation 4.5. Substituting the systematic risk, β, in equation 2.5 and doing some interior solution, the following equation is obtained:

$$E(\tilde{R}_i) = R_f - n_i + \frac{\rho(\tilde{R}_i, \tilde{R}_m).\sigma(\tilde{R}_i)}{\sigma_{\tilde{R}_m}}[E(\tilde{R}_m) - \tilde{R}_f] \quad (4.8)$$

Sharpe (1964) proved that if the portfolio is efficient, then $\rho(\tilde{R}_i, \tilde{R}_m) = 1$. Therefore, dividing both sides of the equation 4.8 with $\sigma_{\tilde{R}_m}$ will yield the following equation:

$$\frac{E(R_i - \tilde{R}_f)}{\sigma_{\tilde{R}_i}} = \frac{n_i}{\sigma_{\tilde{R}_i}} + \frac{[E(\tilde{R}_m) - \tilde{R}_f]}{\sigma_{\tilde{R}_m}} \quad (4.8^*)$$

The left-hand side of Equation 4.8 is the Sharpe Index, where $\sigma_{\tilde{R}_i}$ shows the magnitude of the variability of the index, which indicates the excess return per unit of standard deviation of the return. However, the Sharpe Index is only suitable for evaluating a well-diversified or efficient portfolio because risk is the dominant factor. For the portfolio, the systematic risk is the remaining risk available. The Treynor Index and the Jensen Alpha Index can be used to measure either a portfolio or individual securities, and efficiency is not required as a prior condition for their usage. On the contrary, the Sharpe Index is not suitable for evaluating individual securities because there are some unsystematic risks involved.

The Jensen Alpha Index has been directly adapted from the *CAPM*, and this has probably helped to make it the most widely used measure in empirical studies. Studies carried out by Kon (1983), Henriksson (1984), Lehman and Modest (1987), Gibbons *et al.* (1989), Ippolito (1989), Grinblatt and Titman (1992), Elton et al. (1996), Hendricks *et al.* (1993), Malkiel (1995), Daniel *et al.* (1997), and Otten and Bams (2004) have all used either the original Jensen Alpha Index or its variations. However, more recent studies such as those by Agudo and Sarto Marzal (2004), Avramov and Wermers (2006), and Choi (2006), have applied the Sharpe Indexand this is especially so with studies which have used a combination of more than one type of measure.

Examining the effect of different measures on portfolio performance valuation and ranking has been the endeavour of a number of studies. Kryzanowski and Sim (1990), Bauman and Miller (1994), Chunhachinda *et al.* (1994) and Rahman (1994) combined both the Treynor Index and the Sharpe Index, whilst Friend and Blume (1970), Chuan (1995), Shukla and Singh (1997), Leong and Lian (1998) and Artikis (2003) used all three portfolio measures. Although it is a controversial issue, different portfolio performance rankings can be produced by each measure; thus, it may be rather difficult to reach a decisive result in the case of using more than one performance measure or analysing a different group of portfolios (see, for instance, Bers & Madura, 2000; Artikis, 2003; Agudo & Sarto Marzal, 2004).

It is suggested that the accuracy of performance measurement results that are obtained by utilising any of the three measures may be doubtful because there is a possible bias against risky portfolios (Friend & Blume, 1970). Consequently this is attributed to the *CAPM's* assumption that implies that the rates of lending and borrowing are similar for all investors and equal to the risk-free rate.

The *CAPM*, with the exception of the three portfolio performance measures, is perhaps the most popular tool for differentiating between performing portfolios or securities and their underperforming counterparts. The securities market line (*SML*) is a graphical representation of the *CAPM*. It is a linear regression obtained by plotting the expected return of a portfolio against its beta coefficients. An efficient mean-variance portfolio

plotted exactly on the *SML* implies that there is no abnormal profit present from the portfolio greater than what is anticipated by the *CAPM*. When there is any deviation from the *SML*, it implies the possibility of obtaining abnormal profit by investing in undervalued portfolios. In this respect, undervalued or over-performing portfolios and overvalued or underperforming portfolios are plotted on the *SML*, with the former ones being plotted above the *SML* whilst the latter lie below the *SML*. The *SML* is a very popular tool that can be used for identifying and segregating outperforming and underperforming portfolios. It is very simple to use, and its interpretations are easily understood.

The validity of the SML as a tool for portfolio valuation purposes has been questioned by a wide number of studies. As an example, information asymmetry is a factor which is beyond the mean-variance efficiency domain and is not appropriately captured by the *SML*. Dybvig and Ross (1985) argued that the information asymmetry makes the SML erroneous and redundant as they contend that deviations from the *SML* may not necessarily designate superior or inferior performance. Dybvig and Ross (1985) additionally mentioned that, "a manager who makes optimal use of superior information can plot above, on, or below the *SML*. Also, plotting inside, on, or outside the efficient frontier – and every combination of these cases is possible."

Green (1986) has added to the body of criticism of the *SML* by showing the vulnerability of the SML to benchmark error due to its high sensitivity to the portfolio or benchmark used as a proxy, especially a non mean-variance-efficient proxy, to the market portfolio. The analysis of mutual fund performance by traditional portfolio performance measures continues to be the dominant way to measure a portfolios performance, both amongst academic literature and in the real world, although there are still some theoretical limitations for these measures. They have become popular mainly because of their simple yet powerful inferences: something that is also true about the *CAPM*. Nonetheless, many other portfolio performance measures have also been developed, which have departed from the mean-variance framework. The following section discusses some of these measures.

4.6.2. Other Portfolio Performance Measurements Methods

Considerable mathematical knowledge is required in order to compute measures, and this is one of the main difficulties affecting portfolio performance measures derived from the mean-variance framework. To compensate for this, several alternative measures for portfolio performance valuation have been proposed that do not demand complex mathematical computations. For instance, a portfolio selection technique using computer programming able to simulate the procedures and decision-making processes for selecting portfolios known as the *heuristic approach* was introduced by Clarkson and Meltzer (1960). The method is greatly supported by its developers, who believe that it is substantially more appropriate than the mathematical approach, which may at best be either dependent only on probabilistic assumptions or at worst not testable.

The distinguishing feature of portfolio performance is the quality of the securities that make up a particular portfolio (Renwick, 1968). Therefore, if highly (poorly) performing securities are selected accurately, a portfolio with superior (inferior) performance can be created on a consistent basis. Renwick (1968) used a *discriminant analysis* technique, in which technique securities are selected based on any two of the four economic or financial variables. The four variables are the rate of return on total assets, the rate of output growth, capital structure, and the rate of retention of available income. In the same vein, as stated by Treynor and Black (1973), securities' analysis is of paramount importance in portfolio construction because competent and robust analysis is a key part of improving portfolio performance, especially if the fund manager has difficulty in understanding Markowitz's or Sharpe's methods because of their mathematical complexity.

Dybvig (1988) argued against the possibility of the *CAPM* accounting for *all* assets and, as an alternative, he proposed the *payoff distribution pricing model* (*PDPM*). Many academics have considered the *PDPM* as simply an extension of the *CAPM* itself. They observe that the numerous theoretical assumptions adopted by the *PDPM* are similar to those of the *CAPM*. In addition, Dybvig (1988) himself admitted that the *PDPM* needs to

be thoroughly tested empirically, though it has been tested successfully in theoretical form.

Portfolio valuation measures which are based exclusively on *beta* and *sigma* have failed to consider both the vitality in portfolio objectives and the impact of the investment holding period (Bauman & Miller, 1994). This was the reason for the gradual inconsistency of portfolio ranking that was produced by the Treynor and the Sharpe measures (Bauman & Miller, 1994).

Bauman and Miller (1994) proposed a measurement model to diminish this problem. The model takes account of a particular portfolio's objectives, and it presupposes that the investment style of fund managers will be similar throughout the investment period. The valuation model takes a complete market cycle period, and this decreases the overreaction to bull and bear markets, which are examples of the impact of temporary market instability. It, thus, produces a portfolio ranking between the successive market cycles that is more consistent. Finding evidence of correlation in the year-to-year returns of mutual funds, Bauman and Miller (1994) implied that predicting the future returns of the funds will be possible.

Chunhachinda *et al.* (1994) drew a comparison between the portfolio ranking produced by the Treynor Index and the Sharpe Index and the ranking generated by the *higher moment performance measures* developed by Stephen and Proffitt (1991; as cited in Chunhachinda *et al.*, 1994). After claiming that in the case of being not balanced, the *CAPM*-based two moment measures will not be appropriate to measure portfolio performance Chunhachinda et al. (1994) focused their attention on the effect of the investment horizon on portfolio performance. Their sample showed evidence of skewness and kurtosis in the return distribution of the 14 international stock markets. This caused the researchers to indicate that the shape of the return distribution is rather asymmetrical. Chunhachinda *et al.* (1994), therefore, argued, that in order to evaluate portfolio performance, the best measure would be *higher moment performance measures*. In order to confirm this, a comparison was made between portfolio ranking, when a high

correlation existed for the ranking produced by the alternative measures, and portfolio ranking, generated by the Treynor Index and the Sharpe Index.

According to Chen and Knez (1996), only if a portfolio's performance satisfies four conditions measure, can it be accepted. The conditions demand that portfolio performance assigns zero performance to each portfolio in some reference set and it should be linear, continuous and nontrivial. Chen and Knez (1996) continued that the conditions are met if the market stringently tolerates the *law of one price*, which implies that there are no arbitrage opportunities. Discovering a lack of room for arbitraging in the portfolio valuation measurement, they proposed the *no-arbitrage performance measure* (NA-based measure) as an alternative measure. The NA-based measure is allegedly independent from the models of standard asset pricing equilibrium; hence, there is no misspecification error.

Murthi et al. (1997) introduced the *DEA portfolio efficiency index* (*DPEI*), which is a non-parametric approach based on the data envelopment analysis (*DEA*) following their attempt to deal with the shortcomings related to the benchmark problem, market timing and transaction costs available in the Jensen Alpha Index and the Sharpe Index. *DPEI* is not affected by benchmark error because it does not require any benchmark specification; it can also incorporate transaction costs explicitly into the model. The new method roughly showed the mean-variance efficiency of all the 2,083 mutual funds in the sample. Measuring portfolio performance under the mean-variance-skewness framework by applying an extended version of the *DEA* method, Joro and Na (2006) argued that the mean-variance-skewness case represents investors' preferences better than the mean-variance framework of the *CAPM*. Although they used complex and expensive computational programming, the final results are rather unconvincing.

The *artificial neural network* (ANN) proposed by Indro *et al.* (1999) is a non-linear approach for portfolio performance measures, which was first developed to study the functionality of the human brain. The modified version of *ANN* is a performance-forecasting model that employs non-linear function mappings by taking advantage of a *multi-layer perceptron model* and a general purpose *non-linear optimiser* (GRG2), which

is a computational methodology. It also incorporates a heuristic model on specific fund characteristics such as turnover, fund return, price-book (P/B) ratio, price earnings (P/E) ratio, and market capitalisation as variables to predict fund performance. Considering growth and blend funds, it is arguable that the *ANN*-model-generated forecasts are superior to those of the linear model; however, the superiority of the linear model over the *ANN* model is manifested in analysing value-oriented funds.

As an alternative to evaluate portfolio performance, Bowden (2000), introducing the *ordered mean difference* (*OMD*), criticised the standard linear models for not accounting properly for market timing ability as well as differences in investors' risk profile. The *OMD* procedure acts by computing the difference in means between return of a particular fund and return of a market portfolio as an example of a benchmark that is ordered by values of the benchmark, from which, the conditional ordered mean difference (*COMD*) that is the expected value can be used for measuring portfolio performance. The scope of Bowden's (2000) study was rather limited but showed that some mutual funds could indeed lay claim to successfully outperforming the market on a consistent basis.

In order to construct and evaluate a portfolio of mutual funds, Pendaraki et al. (2005) introduced an integrated methodological approach; they used a two-stage framework called a *multi-criteria decision aid* (*MCDA*). In the first stage the mutual funds are identified according to specific evaluation criteria, then, using the *UTADIS* (UTilités Additives DIScriminates) classification method, they are evaluated and classified into appropriate groups, and, finally, the best performing mutual funds will be selected to be included in the final portfolio. In the second stage, to determine the optimal proportion to allocate to each of the chosen mutual funds in the final portfolio, a goal programming method is employed in the second stage. The MCDA methodology has reportedly produced encouraging results using a sample of Greek mutual funds.

The *incentive-compatible* portfolio performance measure was proposed by Choi (2006). It makes a connection between fund performance and the inducement structure of the respective fund managers. It encourages fund managers to maximise the return of their funds for higher managerial fees so that the problem of moral hazard in the fund

management industry will be minimised. Choi (2006) supports his new measure foundations theoretically considering the early life of the measure. He does not, however, offer any evidence in terms of data analysis to empirically support the theory.

Although the above studies did not provide concrete results, they show that the search to find an appropriate portfolio performance measures still continues. There are therefore good reasons why the Jensen Alpha Index and the Sharpe Index, despite being traditional portfolio valuation measures based on the mean-variance theory, remain popular among both academics and practitioners. One is the simplicity and the sophistication of the mean-variance efficiency theory; the other is that suitably robust and effective alternative measures have not been formulated, due either to theoretical or empirical limitations or costs constraints. Unfortunately, choosing the portfolio valuation method will be difficult for investors and analysts because there are various portfolio performance measures with different valuation outcomes (Chen & Knez, 1996; Chunhachinda *et al.*, 1994).

Nevertheless, previous studies have emphasised investigating an appropriate portfolio performance measure in order to have a fair evaluation of fund performance which, in turn, is a sign of the actual services and capabilities provided by fund managers. In fact, the scope of the study of fund managers' performance was originally limited to analysing portfolio return and risk. It has since expanded to include broader issues like trading microstructures (the perseverance in fund performance and the impact of transaction costs) and fund managers' unique investment skills (market timing ability, stock picking talent and management styles).

4.7. PERFORMANCE MEASURE AND RATIOS

The preceding sections identified a number of issues related to performance measurement, and the following section discusses these issues in greater detail.

4.7.1. Analysis of the Hypothetical Portfolios' Risk-Adjusted Return Performance

In this analysis, the risk-adjusted return performance of the Islamic-based portfolio is examined against the conventional portfolio. In order to achieve this, the hypothetical portfolios' performance is measured by applying the traditional portfolio valuation

models of the Sharpe Index, the Treynor Index and the Jensen Alpha Index. The reason for choosing these models is that their underlying theories have been heavily examined and remain well established following the many rigorous empirical tests which have been carried out in the past to validate the effectiveness of these models. The simplicity of the Sharpe Index and the Treynor Index models has made them the most popular risk-adjusted return valuation models for practitioners as well as academics, while the direct application from the *CAPM* equilibrium is the main driver behind the Jensen Alpha Index to be so popular. Some examples of past studies which have used the traditional portfolio performance measures on ethical fund performance are Sauer (1997), Mallin *et al.* (1995), Bello (2005), Kreander *et al.* (2004), Chong *et al.* (2006), Statman (2006) and Schröder (2007); some studies have examined Islamic fund performance, like those by Yaacob and Yakob (2002), Shah Zaidi *et al.* (2004), Hussein and Omran (2005), and Abdullah *et al.* (2007).

Therefore, a comparison can be made between the results of this study and the findings of similar studies carried out in the past by using the same analytical approach but in a more meaningful fashion.

4.7.1.1. The Sharpe Index

Equation 4.8 above shows a portfolio's equity risk premium per unit of total risk measured by Sharpe (1966). In this equation, r_p is the return of the portfolio, r_f is the risk-free rate return which is represented by the the US t-bills or the *mudarabah* investment rate for *Shariah*-compliant instruments, and δ_p is the portfolio's standard deviation or total risk. The Sharpe Index uses a capital market line (CML) as a benchmark. The *CML* is a straight line that links a risk-free rate instrument with the market portfolio (represented by the index). The *CML* is capable of representing the set of all efficient portfolios if the assumptions of the *CAPM* theory are made. Hence, a portfolio may lie above or below the CML. In the case of the former, it is considered to represent outperformance of the market while for the latter it represents underperformance of the market. If the index value is unbiased, then a higher Sharpe Index is preferred over a lower Sharpe Index.

4.7.1.2. The Treynor Index

Treynor (1965) developed a portfolio performance measure, which is similar to the Sharpe Index, but the denominator here is the systematic risk or beta, βi, of the portfolio rather than standard deviation. A portfolio's equity risk premium per unit of systematic risk is measured by the index as shown above in Equation 4.7., where R_i is the return of the portfolio, R_f is the rate return which is risk-free as represented by the Malaysian T-Bills or the *mudarabah* investment rate for *Shariah*-compliant instruments, and βi is the portfolio's beta or systematic risk.

The Treynor Index, as a benchmark, uses the SML, which stands for Security Market Line and is a straight line that links a risk-free rate instrument with the market portfolio (represented by the index). According to the *CAPM*, the *SML* signifies a linear relationship between the expected return and beta of a portfolio. The *SML* is capable of representing the set of all efficient portfolios if the assumptions of the *CAPM* theory are made. Hence, a portfolio may lie above or below the SML. As with the *CML*, in the case of the former it is considered to represent outperformance of the market while for the latter it represents underperformance of the market. The Treynor index is specified in percentages and a higher Treynor Index is preferable to a lower one.

4.7.1.3. The Jensen Alpha Index

The Sharpe Index and the Treynor Index can be used to rank a group of portfolios according to their historical performance. However, it is not possible to indicate how much a portfolio (in terms of percentage return) outperforms or underperforms its market index. As one of the popular traditional portfolio performance measures, the Jensen Alpha Index, created by Jensen (1968), is based on the Capital Asset Pricing Theory (*CAPM*). This index can compensate for the shortcomings of benchmarking performance relative to the index, as shown above in Equation 4.6.

In equation 4.5, R_i is the return of the portfolio, R_m is the return of the (Kuala Lumpur Composite Index (KLCI), and R_f is the risk-free rate return as represented by the Malaysian T-Bills or the *mudarabah* investment rate for *Shariah*-compliant instruments.

The difference between the portfolio's actual return [R_i] and its expected return is represented by αi and is predicted by the *CAPM*. One of the *CAPM* implications is that the excess returns on both the portfolio [R_i] and on the market portfolio [R_m] have a direct connection to the beta, βi, of the portfolio; this causes the excess return of the portfolio with a beta of zero to also be zero. As a result, if the *CAPM* needs to be in a state of equilibrium, the constant term αj should be zero. However, providing that α is larger than zero, the portfolio expected return will be larger than the return that the *CAPM* equation assumed; therefore this indicates an underestimated position. Similarly, providing that αj is less than zero, the portfolio's expected return will be lower than the anticipated return using the *CAPM* equation, thus implying an overestimated position. Jensen (1968) asserted that a portfolio's performance can be measured by applying the constant term αj in Equation 4.4. The reason behind this is that a superior ability in stock selection will enable a portfolio manager to select undervalued securities; thus, he will be able to generate consistent higher returns and prevail over beta predictions. The alpha value in the mentioned example would be positive in that scenario. Percentages are used in the index and a higher Jensen Alpha Index is favoured over a lower one. This is because a portfolio is reported to be outperforming if the $\alpha i > 0$, and deemed to be underperforming if the $\alpha i < 0$.

Although the Jensen Alpha index is a more intuitive measure, it is not suitable for ranking a group of portfolios in its original form. Fitting the index for portfolio ranking necessitates dividing the portfolio's Jensen Alpha Index with their portfolio beta so that the alpha would be adjusted for the differences in the systematic risk of the individual portfolios (Haslem, 2003). So, in the case of the approximate similarities of the betas of the portfolios, portfolio ranking of the adjusted Jensen Alpha Index will be the same as the ranking given by the original Jensen Alpha Index.

4.7.2. Performance Measures

It is necessary to understand the multiple facets of mutual funds' returns to evaluate their performance. Understanding the performance quality of mutual funds over a specific period requires considering multiple dimensions. The most commonly used performance

measures employed most regularly throughout the existing financial literature are summarised here, along with their qualifications and advantages.

4.7.2.1. Average return

Fund returns[2] are simply evaluated by computing the average total return and comparing it to the average return of the benchmark. Average return from a mathematical point of view is defined as:

$$Average\ return = \frac{R_{pt} + R_{nt}}{n} \qquad (4.9)$$

where *Rpt* is the return on fund *p* at time t, and *n* is the number of fund returns in the sample. Although assessing IEF performance in this way is very simple and intuitive, it is not the only measure to evaluate the funds as one of the main limitations of this measure is that it does not take into consideration the risk of the return.

4.7.2.2. Jensen's Alpha (*alpha*)

Based on the *CAPM*, Michael Jensen's (1968) model is one of the most famous performance measures in financial literature, though it has some fundamentals that will be explained below. The model is mathematically defined as shown in Equation 4.6. where *Rpt* is the return on portfolio (or fund) *p* at time *t*, *Rft* is the return on the risk-free asset at time t, αp is the intercept of the model, estimated by regression analysis, βp is the systematic risk of portfolio p, estimated by regression analysis, *Rmt* is the return of the market[3] portfolio at time t, and μpt is the error term at time *t*.

Therefore, Equation 4.6 reveals that a portfolio's excess returns function linearly based on its sensitivity to the market, and also further reveals that alpha is the return on that portfolio over and above that predicted by the *CAPM*.

Differentiating between Equation 4.6 and the *CAPM*, it becomes clear that the *CAPM* is based on expected returns, while Equation 4.6 is based on realised returns. Jensen's

[2]Continuously compounded; see Equation 4.7 for the formal calculation of returns.
[3]A benchmark index is practically used to represent the market since the true market return is unknown.

model was derived after determining a realised return version of the *CAPM*. The importance of his work is recognised when we consider the highly demanding task of measuring and quantifying expectations and also the fact that researchers usually only have access to historical (realised) data.

While Equation 4.6 allows for an intercept that is not necessarily constrained to zero, this is not true about the *CAPM*. The intercept (alpha) is the performance measure that was proposed by Jensen (1968) to evaluate portfolio performance. The alpha is the return of a certain portfolio over and above the return predicted by the *CAPM*. Therefore it does not 'cost' any systematic risk because even when beta is zero it may be positive. A significant and positive alpha can be used to rank funds and implies the level of outperformance achieved by each fund manager.

An intercept that can be systematically different from zero is permitted in Jensen's model, but this is not so for the original *CAPM* model, which does not allow this and instead constrains alpha to zero. While it is not a *CAPM* assumption that deviation from the expected value is impossible, this deviation is nevertheless not *expected* to be zero. This feature of the *CAPM* did not allow for agents to be superior in their forecasting skills[4] and was criticised by Jensen on account of this. Jensen highlighted that a superior forecaster will choose securities whose performance is systematically superior to what the market expects[5]. These forecasting skills can therefore lead to genuine claim of alpha generating abilities. Due to the underlying *CAPM* assumption about an efficient market in which agents on average cannot earn superior returns, this systematic superior forecasting is simply not permitted by the *CAPM*.

The inefficiency of markets is proven when we consider that an average significantly positive alpha would lead to the conclusion that agents systematically have information about certain securities that the market does not. Jensen's *alpha* is a widely used method, but it has some drawbacks. For example it is not very likely that the *beta* of a portfolio would be stationary as there is often a tendency amongst investors to move in and out of

[4]The forecasting skills may be because these agents might for example have info that the market does not posses.
[5]It is indeed the ability to forecast security prices better than the market, what makes an agent superior.

certain sectors, and between asset classes, and such activities all affect the beta of the underlying portfolio's. Thus, it may be implied from Jensen's model that if a certain portfolio has a large alpha, the outperformance is the likely the result of a higher beta and is not related to historical issues.

A further danger and criticism of *alpha* that is raised regularly is that, in focusing purely on a high *alpha* figure as measure of an investments attractiveness, it investors do not know how much risk is being assumed for the high return. As such, alpha alone can lack validity as an appropriate measure of performance against other factors that determine returns relative to market exposure, as purported for example by Fama and French (1992). The last drawback is related to the inefficiency of alpha in analysing a security or fund which is part of a larger fully diversified portfolio. In that case, as explained before, the TR is generally a better measure.

4.7.2.3. The Sharpe ratio (SR)

The Sharpe Ratio is one of the most widely used performance measures in financial studies. Although developed in the late 1960s by William Sharpe (1966), it is still extensively used because it provides a simple number on which to rank funds (or portfolios). The Sharpe Ratio can be defined mathematically as shown in Equation 4.8, where Rp is the average return of portfolio p for the sample period, and Rf is the average return of the risk-free security. Equation 4.6 represents the standard deviation of the fund portfolio return over the sample period; where Rpt is the return portfolio p at time t, Rp is the average return of the portfolio during the sample period and n is the number of return observations in the sample. Equation 4.8 obviously demonstrates that the SR divides the excess return of a portfolio over the sample period by the standard deviation of the returns of that portfolio over the same period. Therefore, the amount of excess return a portfolio earns per unit of risk is provided by the *SR* (with risk being defined by Rp).

The Sharpe Ratio is attractive primarily because it is intuitive and simple. Its simplicity comes from its ability to rank funds on the base of a single figure, and its intuitiveness is driven by its ability to reward funds with a higher ratio when their returns are higher whilst keeping the same level of risk, or when keeping the same level of return for a

reduced level of assumed risk. According to Henriksson and Merton (1981), the applicability of the SR as a performance measure is limited in the case of non-linear payoffs, and this is therefore one of the limitations of SR.

The Sharpe Ratio is vulnerable to being manipulated through employing option-like strategies (Goetzmann et al., 2002), as the SR could theoretically decrease despite a much heightened level of risk being built into such investment strategies. For example, the SR may indicate a poor performance for the returns of a certain strategy that is strictly positive but unstable compared to a portfolio whose volatility is low but which has some negative returns. Both are strictly positive, so the returns of the former portfolio are probably higher than those of the latter one. Encountering such issues, the SR would consider the latter portfolio, despite having lower returns, as the superior one at the same time as having greater downside risk. Additionally, sometimes the average excess return of a fund is negative and in such cases the SR is difficult to interpret.

4.7.2.4. The Treynor ratio (TR)

Having a close similarity to SR, the Treynor Ratio, which was developed by Treynor in 1966, provides a reward-to-risk ratio in a single number. The difference between the two models is not the total risk; rather, they differ in the systematic risk of a portfolio. TR is shown mathematically in Equation 4.7 above where Rp and Rf are the same as in Equation 4.8, and βp is the same as in Equation 4.6.

The way TR measures fund performance is through excess returns per unit of systematic risk (Equation 4.7). Sometimes the portfolio that should be assessed is part of a larger investment portfolio that is fully diversified; in such cases TR is applied.

In cases such as these, the mean excess return should be weighed against the systematic risk not the total risk for performance evaluation (Bodie et al., 2005) because, in that case, funds that have identical systematic risk but different total risk will be ranked the same. It should be noted that this statement does not apply when the funds are not part of a large fully diversified portfolio.

Like the SR, the TR is also vulnerable to being manipulated at times. As an example, Goetzmann et al. (2002) believe that it is possible to enlarge the TR as much as possible by reducing (manipulating) beta.

However, the TR is advantageous over the SR in terms of their performance when a fund or security is a candidate to be part of a larger fully diversified portfolio[6]. In such a case, the TR gains superiority over the SR. For example, in the case of similarity in the excess return of funds *A* and *B*, if there is a higher standard deviation of fund *A*'s returns, the SR will inherently show fund A to be the better one. However, providing that the systematic risk of fund B is lower than that of fund A, Fund B might actually be the better fund. The reason for this is that part of the total risk can be diversified away when it is combined with the rest of the large diversified portfolio.

4.7.2.5. The information ratio (IR)

This ratio is a performance measure that is frequently used for evaluating funds that are actively managed. As with the *appraisal ratio* (Treynor & Black, 1973), the IR is the ratio of average active return to active risk, which was later described by Grinold (1989) as the information ratio. Mathematically it is defined as:

$$Information\ Ratio = \frac{R_p - R_i}{S_{p-i}} \qquad (4.10)$$

where R*pt* and R*mt* are as defined in Equation 4.9, *n* is the total number of return observations and the bar above R*pat* indicates an average. Looking at Equation 4.10 it becomes clear that active risk (*Rp*) is simply the standard deviation of the difference between returns of portfolio *p* and the benchmark return. 'Tracking Error' is the name given to this statistic because it indicates how well a certain portfolio follows its benchmark.

The IR highlights the portfolio return above the benchmark index per unit of active risk (Equation 4.9). The low rate of active risk indicates that the portfolio returns do not deviate too much from the benchmark returns. It is not difficult to see that a fund that

[6]See Bodie et al. (2005, pp. 872-874) for a stylised example of why this might be so.

follows the market fairly well, but has a higher return, is quite attractive. According to Bodie *et al.* (2005), the IR can be appropriately used when a certain portfolio displays an alpha and is mixed with a passive index portfolio because it affords a benefit-to-cost ratio through mixing the active portfolio with the passive one.

Historical data shows that the *IR*, along with other performance measures discussed above, is a backward-looking ratio. Compared to the *SR*, for example, the ratio is less easy to understand and is also difficult to interpret if it produces a negative figure. Furthermore, caution needs to be utilised at times as the *IR* output may be different when evaluated against different benchmarks due to being quite sensitive to the benchmark chosen (Goodwin, 1998).

4.7.3. The Modigliani and Modigliani Measure (MM)

As an extension of the SR, the MM measure is often used because it is easier to understand than the SR. Developed by Modigliani and Modigliani (1997), the MM converts the SR of a fund to a return percentage. Mathematically, MM is defined as follows:

$$MM = (SRp + SRm) * \sigma m + Rf \qquad (4.11)$$

In this equation, *SRp* represents the Sharpe Ratio of the portfolio, *SRm* the market and σm is the standard deviation of the market return. Having the same standard deviation, portfolio p and the market can be put into the equation to determine the difference in their returns.

Suppose, for example,[7] that the average annual return of a risk-free asset is 6 per cent, the average annual return of a portfolio p is 35 per cent, the market 28 per cent and their standard deviation is 42 per cent and 30 per cent respectively. If we invest (30/42) in portfolio p and the remainder in the risk-free asset, portfolio p could be an equivalent of the standard deviation of the market. In such a case, there would be a return of 26.7 per cent, which is 1.3 per cent less than the market return of 28 per cent.

[7]This example is taken from Bodie et al. (2005, pp. 868-869)

The MM would be -1.3 per cent (=26.7-28), which means that portfolio p, having the same level of risk as the market, would have an average annual return 1.3 per cent less than the market.

One of the interesting features of the MM is that, unlike the SR which gives an absolute measure of performance, the MM evaluates the performance of a fund relative to the market. However, the MM's sensitivity to the benchmark used is a serious limitation of the measure.

4.7.4. The TT Measure (TT)

To be more understandable, the *TT*, like the *MM*, is also an extension of a different performance measure (the *TR*). It was first proposed by Bodie et al. (2005) and is defined as:

$$TR = R_f - (R_m - R_f) \qquad (4.12)$$

where *TR* is as defined in Equation 4.7 , R_f as defined in Equation 4.11 and R_m is the average return on the market portfolio.

The TT results are the excess return of a fund per unit of systematic risk over the excess return on the market –which by definition has a beta of one. It should be pointed out that the difference between the *TR* of the market and the *TR* of a fund is the *TT* of that fund.

4.7.5 Market Timing Ability (*gamma*)

All aspects discussed thus far about performance measures relate to the ability of a fund manager to choose the right stocks, and the assumption of frequent means and risk. However, the model proposed by Treynor and Mazuy (1966) allows for the ability of fund managers to partly shift their managed capital between a safe holding, such as cash, and risky securities which are determined by how well the market is expected to do. Their model is defined mathematically as:

$$R_{pt} - R_{ft} = \delta_p + \beta_p\left[R_{mt} + R_{ft}\right] + \gamma_p\left[R_{mt} - R_{ft}\right]^2 + \mu_{pt} \qquad (4.13)$$

Where *Rpt*, *Rft*, δ *p*, βp and μpt are the same as defined previously, and γp, as the coefficient, implies market timing ability and is estimated through regression analysis.

Treynor and Mazuy's model is simply an extension of Jensen's model with a quadratic term added to it, as can be seen in Equation 4.13. The relationship between a fund's excess returns and the market excess returns is indicated by the model as a quadratic relationship if fund managers achieve success through correctly judging market timing.

The implication is that if market success is achieved by fund managers, this success will increase the funds exposure the market. Supposing the validity of this statement and achieved success of fund manager, γ_p should be positive and statistically significant. The ability of this model to provide a robust test for the other model in providing another performance has made it a valuable addition to the performance measures previously discussed. Like the previous models, this model similarly has some limitations. For example, it is dependent on a benchmark which is subjectively chosen and also the model simply allows for the market to explain stock returns.

4.8. FUND CHARACTERISTICS INFLUENCING PERFORMANCE

A number of issues stemming from fund characteristics can determine the performance of mutual funds, which are discussed in the following sections:

4.8.1. Risk

As far as risk in the world of finance is concerned, there are a number of measures which aid investors and analysts in examining the level of embedded risk involved in mutual funds in comparison to the market. The most popular risk measure in this regard is known as *beta*, which is a criterion for the measurement of volatility, also called systematic risk, of a security or a fund compared to the market in general. To calculate beta, regression analysis is used and it indicates the inclination of a security's return towards responding to market changes. When analysing the correlation of a securities movement to that of the market, a beta of one means that the security's price is perfectly in line with that of the market, a beta of less than one is indicative of the fact that the return of the security will be less volatile than the return of the market, and, lastly, a beta

greater than one indicates that the security's price will be more volatile than the market's price.

4.8.2. Cash Flow

Cash inflows and outflows affect the performance of funds. Such flows are widely believed to be a performance drag because of associated portfolio management problems (Peterson *et al.*, 2001). The investors' subscriptions into the funds are considered as inflows; therefore, they are the additional cash amounts which the asset manager receives at different points in time with regard to the funds' announcements. The fund manager makes use of these additional funds and invests them according to the fund's investment strategy, and creates administrative stress.

4.8.3. Fund Size

Studies have revealed that the managers who outperform the market usually attract significant amounts of money from investors who want to benefit from the managers' perceived value-adding strategies. This by itself results in a much bigger fund (Becker & Vaughan, 2001). Funds with large amounts of assets under management offer a number of advantages. First of all, accounting-wise, large funds are capable of achieving economies of scale by spreading fixed costs over a large asset base. Secondly, they provide managers an opportunity to gain beneficial investment positions which are not available to managers of small size funds (Ciccotello & Grant, 1996). Among others, Glosten and Harris (1988) found that large funds are able to build up trade with more favourable spreads, considering their market positions and large trading volumes. Overall, these institutions and cost advantages are expected to help large funds outperform small ones.

Large funds, however, bring their own unique management challenges (Chen *et al*., 2004). When funds keep growing, there needs to be enough opportunities which are worth investing in to successfully continue deploying the capital. In many cases, big funds can be forced to take up larger positions than the optimal in some stocks whilst small funds can remain more nimble and exclusively allocate their assets to the best

ideas. Big funds in this sense carry a burden of usually having extra liquidity which inherently calls for more investment ideas if the previously utilised ones become saturated. The size does however create higher management fees which enables the larger funds to hire additional managers. This extra manpower will in turn allow the larger funds to cover a larger number of stocks and thereby remain responsive to additional investment opportunities. On the other hand, managers of large funds naturally lose the ability to trade significant allocations of their portfolio quickly by moving in and out of a few positions (Ciccotello and Grant, 1996).

4.8.4. Fund Age

The age of mutual funds plays a significant role in a funds' performance. Younger funds may face considerably higher costs in the initial start-up period which comes as a result of the marketing cost. Evidence suggests that the return of new mutual funds may also be influenced by an investment learning period (Gregory *et al*., 1997). According to Bauer *et al*. (2005), one of the reasons behind younger funds' underperformance is that they are exposed to higher market risk as a result of their investment in a lesser number of stocks. That is to say, there is a significant relationship between a fund's age and its size. Younger funds tend to be smaller in size than the older ones

4.8.5. Style

There are different styles in which the funds can be managed. The fund can be administered both passively and actively. In addition, the management style can be defined on the basis of the investment objectives. In the US, funds are categorised according to investment styles, and classifications such as aggressive growth, growth and growth/income are common and well established. These styles are put into practice on the condition that the investors approve them. Fama and French (1992) indicate that the stocks of small companies are more lucrative than the stocks of big companies.

4.8.6. Expenses

The expenses covered by the investors of a company include sales fees, management fees, and other trade fees. A sales fee is paid when an investor initially invests. This fee

is paid just once and doesn't affect the performance of the fund thereafter. The management fee however is usually paid annually and has a direct effect on the fund's performance. This fee is deducted from the fund's assets every year and is transferred to the fund manager as the payment for services rendered in managing the fund throughout each year.

The transaction fee refers to the fee for buy/sell transactions, which are performed by the fund manager; in this way he is able to invest the money paid by investors and attempt to deliver good results. Additionally, commission or 'brokerage' fees are paid throughout the year on an arising basis for any rebalancing or switching that takes place on the portfolio. Literature in this field indicates that performance differences cause expense differences between mutual funds. According to Chevalier and Ellison (1999), investment strategies differences among managers lead to expense differences for different funds. As a result, high management fees indicate that investors are paying high salaries to the researchers in order to allow the fund managers to establish their investment strategies on the basis of solid research results. Moreover, research outcomes indicate that a company can increase its turnover if it has a good fund manager who makes calculated decisions; the provision of such a manager requires more financial support and therefore increases the expenses of a company.

4.8.7. Turnover

The number of times the manager buys and sells holdings within the portfolio is called the turnover ratio. It indicates the number of times that the funds assets have been changed throughout its life. This is measured as a multiple of times. Moreover, it can be an indication of how qualified and successful a manager is

Since the publication of a research paper by Jensen in 1968, there have been some controversies on the issue of funds and fund management. The experts in the field wonder whether active and qualified managers actually add genuine value to the assets they are dealing with (Wermers, 2000). Also, a research outcome shows that the fund manager's flexibility in dealing with the funds and market leads to his success. In

addition, there is a direct and strong relationship between profit and fund wealth, such that a small fund provides for a faster and more aggressive investment of the fund, which is not the case for big funds; the bigger the fund, the less risk taking the managers would engage in Agarwal *et al.* (2002). In fact, the qualifications of a manager have a crucial role in the success or failure of a company, and the qualified managers produce a bigger turnover

4.8.8. Management Tenure

Management tenure is the number of years the current manager has administered the fund. An argument is proposed by some academic that suggests investors ought to be able to rely on management tenure as a criterion for fund selection, since those with longer tenure possess greater experience. Management tenure can also affect management fees, because experienced managers might be more efficient in analysing information, allowing them to charge lower fees (Filbeck & Tompkins, 2004). However, others maintain the opposite view, that new managers have more incentives to perform well. There are also studies showing that departing managers on average underperform two years prior to departure and that they have higher portfolio turnover and management fees during this period (Peterson *et al*., 2001).

4.8.9. Management Structure

Chen *et al.* (2004) suggest that being big can include organisational diseconomies of scale. Whereas a small fund can be run by a single manager, a large fund normally needs more than one

One type of organisational diseconomy of scale is known as hierarchy costs. The idea is that a mutual fund with a senior manager at the top managing juniors undercuts the decisions of those at the bottom, resulting in them not investing time in certain types of research. This is to say that a higher-ranking administrator directing lower ranking administrators belittles the decisions of the people who are at the bottom level, with the result that they would not invest much time in definite kinds of research

Many decisions regarding security selection and asset allocation are not made by individual managers, but by groups or teams of managers. Despite this, little research has been conducted to address the similarities and differences in performance outcomes when the fund is managed by a team of decision makers rather than by an individual decision maker (Prather et al., 2001

Some scholars argue that decision makers are knowledgeable, self-interested, and rational with access to all the necessary information to make valid decisions. Therefore, differing alternatives to the same problem should lead to the same choice, no matter by whom the decision is made: be it an individual or a group the end result should be the same.

Other scholars adopt a different view, suggesting that individuals operating in a group decision-making environment may be subject to group polarisation (Prather *et al*., 2001). In contrast, other studies have found that groups recall and recognise relevant information better than individuals. These findings suggest that teams of decision makers have a greater number of resources than those individual decision makers, resulting in a greater number of alternatives being made available for specific decisions.

A discussion on the behavioural decision-making literature shows that the performance of a fund managed by a team will be significantly greater than that of one administered by an individual manager (Prather *et al*., 2001). This performance is not free of difficulty, however, and there remain a number of problems with coordinating groups, such as hierarchy costs, which intensify when a fund grows and the number of managers' increases that can eliminate the advantages of being a group (Indro *et al*., 1999).

4.8.10. Ramadan Effect

For Muslim community around the world, month of Ramadam is the month fasting. During Ramadan because of the fasting and other religious and spiritual activities people are likely to remain passive and not as active as they would in other months of the year. Essentially this phenomenon may have a substantial effect in the performance of the financial and economic sector, respectively, of the economy. Considering the magnitude of the impact of the fasting and other spiritual development during Ramadan, it is

worthwhile to know how Ramadan effect influence the performance of Islamic finance in general and other mutual funds in particular.

Almost in all Muslim countries, one can observe a sea change in the trading activities of financial markets. Among other things, the major changes that may take place in the trading activities are the reduction of the hours of the work and more inclination towars religious activities during month of Ramadan. Majority of Muslim countries use both Gregorian and Islamic Lunar calendars, respectively. The farmer is use by business and governments, while the latter is primarily used for religious holidays and other religious activities. Because of the fasting and other religious activities the working hours in offices and businesses are reduced in almost all Muslim countries. Since the working hours are less and businesses activities are down during the month of Ramadan as compare to other months. Therefore, it is pertinent to know that the trading behavours of investors during Ramadan, which may differ from other months. Thus, one of the aism of this study is to examine the changes that take place in the stock market return and its fluctuations during Ramadan. It may not be naive to think of a significant change in the social and economic lives if all Muslims, as Ramadan is the fifth pillar if Islam and virtually all Muslims tend to following this fundamental tenant of Islam. As it discussed in chapter 6 indicates, during Ramadan, when Muslim keep fasting they abstain from every kind of eating, drinking, smoking etc. from dawn to dust. Besides, fasting Muslims also practice piety, such as the recitation of Quran and other ritualistic prayers, and pay charity out fo their weakth to the needy and poor (Mustafa, 2008)..

The impact of the month of Ramadan on the trading behaviour is thoroughly discussed with the help of relevant literature in chapter 6. Furthermore, the chapter also gives an empirical examination of the Ramadan effect so shows how effective the Ramadan factor is in terms of changing the trading behaviour of the investor.

4.8.11. Oil Price Effect

Considering that oil determines the wealth of the GCC countries in particular and oil producing countries in general, it is also essential that the impact of oil prices on financial performance to be observed.

Looking at the literature, we can discover that since demand and supply equilibrium on oil is unpredictable and oil is considered both as an investment commodity and a fuel, the stock market leads the oil price. The literature in such studies indicates that there are 11 leading indicators, one of which is the stock market. These are economic variables that make up the Leading Economic Indicators Index, which is regarded as leading the economy by six to nine months. The oil price can generally be considered a coincident indicator rather than one of those 11 indicators Hammoudeh and Choi (2005).

Abu-Bader and Abu-Qarn (2008) showed empirical evidence suggesting that finance leads to growth in five out of six Middle Eastern and North African countries. The empirical results indicate that oil prices have no significant effect on stock returns. While Maghyereh's (2002) findings did not show any significant impact of oil shocks on stock index returns in emerging economies, Cong et al. (2008) also showed that oil price shocks do not statistically have a significant impact on the real stock returns in most Chinese stock market indices. Additionally, empirical results do not support the hypothesis that oil prices lead to changes in stock market returns in countries like Turkey, Jordan and Tunis (see: Al-Fayoumi, 2009). Moreover, Kandir (2008) shows that industrial production, money supply and oil prices do not appear to have any significant effect on stock returns

Although stock markets in countries like Qatar, Oman, and the UAE react positively to oil price increases, for other countries such as Bahrain, Kuwait, and Saudi Arabia, a change in the oil price does not affect stock market returns as found by Arouri and Fouquau (2009). However, Abdelaziz *et al*. (2008) shows oil prices are observed to have a long-run positive effect on the stock market in countries such as Egypt, Saudi Arabia, Oman and Kuwait. Furthermore, according to the findings by Huang *et al.* (1996), in the

1980s, there was virtually no correlation between oil futures returns and the returns of various stock indexes. However, it has since been revealed that the oil and stock market returns are indeed now cointegrated. The results from the modified Vector Error Correction Model (VECM) by Anoruo and Mustafa (2007) suggest that causality runs from stock market to oil market, but not vice versa.

Amongst most oil importing countries, oil price shocks have a significantly negative effect on the stock market, except in Norway, where real stock returns show a significantly positive response to oil price due to the particularly large benefit to the Norwegian economy from uplift in the oil price (Park & Ratti, 2008). Oil prices were found to have a significant effect on both economic activity and the price levels of indices. Park and Ratti (2008) and further studies showed that the relationship is always positive, often highly significant and reflects the direct impact of volatility in the price of crude oil on share values within the sector (see also: El-Sharif, *et al*., 2005). Sadorsky (1999) therefore shows that oil prices and oil price volatility both play important roles in affecting real stock returns. According to Papapetrou (2001), oil prices are important in explaining stock price movements. With the existence of an instantaneous oil prices, there is a temporary effect of oil price innovations on stock prices (Cologn & Manera, 2008). Thus, an oil price change or its volatility has a limited impact on the economies if (a) the change is below the threshold levels; if (b) the change is above threshold levels, and if (c) it appears that the change in oil price better explains macroeconomic variables than the volatility of the oil price (El-Sharif, *et al*., 2005).

The inconsistency of the findings is an issue. For example, Gjerde & Sættem (1999) shows that stock market responds accurately to oil price changes. As Hooker (1999) found the Organisation of the Petroleum Exporting Companies (OPEC) price increases do appear to have had significant impacts, while the effects of the price declines of the 1980s are smaller and harder to characterise.. In addition, Hammoudeh and Choi (2005) showed that a positive oil shock will benefit most of the Cooperation Council for the Arab States of the Gulf (GCC) markets.

However, as identified by Arouri & Jawadi (2010), the response of stock returns to oil price changes differs greatly, depending on the sector of activity. In addition, as Gogineni (2010) indicates to the stock returns of industries that are heavily dependent on oil, the stock returns of some industries that use little oil, and perhaps none directly, are nevertheless also still sensitive to fluctuating oil prices In general, as found by Agusman and Deriantino (2008) oil price changes do not have a significant impact on industry stock returns, but a negative and significant impact on the stock returns of the trading sectors

Moreover, interest rate and inflation variables are strong determinants of stock returns, while dividend yields and oil prices only influence returns in regimes identified by multiple regime models (Agusman & Deriantino, 2008). In addition, as found by Sørensen (2009), oil price changes that are caused by exogenous events show that it is only these oil price changes that predict stock returns

In another line of argument, Gogineni (2008) found that the direction and magnitude of the market's reaction to oil price changes depend on the magnitude of the price changes. Thus, oil price changes most likely caused by supply shocks have a negative impact, while oil price changes most likely caused by shifts in aggregate demand have a positive impact on the same day market returns.

Furthermore, the causal relationship is found to be consistently bi-directional for Saudi Arabia. Stock market price changes in the other GCC member countries do not show Granger causality of oil price changes, whereas oil price shocks do show Granger causality of stock price changes. In importing countries, oil price shocks have a negative effect on the stock market, while in oil exporting countries, real stock returns show a positive response to oil price (Arouri & Rault, 2009). The probability of positive and negative co-movement is related to the respective volatility of international equity prices and the volatility of oil prices Leon (2008).

In another study, Driesprong *et al.* (2003) found statistically significant predictability in 12 out of 18 countries and in a world market index. Empirical results show an immediate and significant negative reaction of real stock returns to oil price shock in Nigeria. The

Granger causality test indicates that causation runs from oil price shocks to stock returns, implying that variation in stock market is explained by oil price volatility Adebiyi *et al*., (2009). Additionally, in the case of Norway, Bjørnland (2008) found that a 10 per cent increase in oil prices, stock returns increase by 2.5 per cent in the oil exporting country of Norway Thus, oil price risk impacts stock price returns in emerging markets (Basher and Sadorsky, 2006).

Overall, changes in oil prices are therefore observed to strongly predict future stock market returns in many countries in the world.

4.9. REVIEW OF THE EMPIRICAL STUDIES ON MUTUAL FUNDS

One of the interesting aspects of investment for investors has always been the subject of evaluating the performance of their mutual funds. In the past, they evaluated their performance almost entirely based on the rate of return. They knew about the likely risks but were not familiar with ways of quantifying and measuring them. A study by Markowitz (1952) revealed the necessity of ensuring greater expected returns were potentially offered for investors to expose themselves to greater risk.

Fund performance was first critically analysed in the 1960s, and it has been the subject of widespread study in an almost in numerous number of reports since then. Amongst the more noteworthy, the first empirical analysis of performance was offered by Friend *et al.* (1962), while Treynor (1965), Sharpe (1966) and Jensen (1968) were the pioneers who moved the field on to evaluating fund performance in direct relation to risk whilst these authors also managed to originate key standards with which to measure risk-adjusted returns. Clearly some mutual funds will always perform better than others, and in so doing there is the possibility that they will not only beat their peers but also beat the market. Sharpe (1966) tried to investigate this issue by studying the performance of 34 mutual funds during the years 1954-1963. The results of his study proposed the existence of differences among funds mainly explained by differences in expense ratios, skill, and past performance. Jensen (1968), performing a similar study on 115 funds from the years 1955 to 1964, found that on average the *beta* values of funds were below one. These

findings suggest that, in comparison to the market, they typically took on a lower risk and also the funds achieved worse returns when adjusted for systematic risk.

Studies of mutual fund performance, primarily investigating stock selection and market timing, have been discussed throughout this chapter. However, many studies have focused on various issues related to the mutual fund industry, an overview of which is presented here. Working with a group of Greek investors, Syriopoulos (2002) adopted an approach which enabled him to recognise fund inflow and demand patterns among the subjects. When testing for investors' asset allocation in core mutual fund, classes are needed and the Almost Ideal Demand System[8] (AIDS) methodology seems to be useful. The Federation Europeenne des Fonds et Societes d'Investissement (FEFSI) were responsible for providing the required data for the period January 1990 to April 2001. The fund classes comprised 78 equity funds, 35 bond funds, 26 balanced funds[9] and 34 money market funds [all Greek].

There are two important conclusions drawn from Syriopoulos's (2002) study: the first is that if there is any increase in household spending, there will be a positive impact on both asset allocation to fund classes and on fund inflow, but in the case of variation in the desire to take risks, the demand for mutual fund classes is also affected. Secondly, equity and money market funds have the largest shareholder profile. Thirdly, equity funds and balanced funds are found to represent economic substitutes for one and other depending on market conditions and hedging strategies.

Examining the trading strategies that equity mutual fund managers may apply in emerging markets, Kaminsky *et al.* (2004) discussed two trading strategies: momentum trading and contagion trading. Momentum trading consists of contemporaneous momentum, which is buying current 'winner' stocks and selling current 'loser' stocks, and lagged momentum, which is buying past 'winner' stocks and selling past 'loser' stocks. There are two strategies involved in contagion trading; these are domestic trading and cross-border trading. The Security Exchange Commission (SEC), Morningstar, and

[8] Adapted from Deaton and Muellbauer (1980), the AIDS model explains the allocation of households' level of expenditure amongst different products and services.
[9] Invested in equity and fixed income (bonds) markets.

Bloomberg were providers of data to the study for the period 1993 to 1999. The sample comprises 13 Latin American equity funds, and, as pointed out by the authors, the sample period spans a sufficiently long time horizon to incorporate a good number of crisis periods, including Mexico (1994-1995), Brazil (1998-1999), Russia (1998), and Asia (1997-1998). They proposed evidence of lagged momentum trading strategies, which refers to the buying of past winners and selling of past losers by fund managers. Furthermore, if there is any crisis period, investors practise contemporaneous momentum trading strategies by buying current winners and selling current losers. The authors also proposed that both individual investors and fund managers may sell assets from one country, when asset prices are falling in another, thus engaging them both in contagion trading strategies.

Fifty-six mutual fund industries were investigated by Khorana *et al.* (2005) to determine the size of the mutual fund industry and also its influential factors**;** they merged regulatory forces and economic fundamentals. Taking advantage of two data sources; namely, the Investment Company Institute (ICI) and the Federation Europeenne des Fonds et Societes d'Investissement (FEFSI), they demonstrated that one of the factors that may have a positive impact on mutual fund industry size is laws and regulations, such as in the case of strong judicial systems. So, it can be concluded that countries passing strong laws and regulations and protecting shareholders' interests may benefit from larger mutual fund industries. Economic fundamentals consist of demand-side factors which aim to recognise countries with higher GDP per capita and more educated populations. These economic fundamentals also allow larger mutual fund industries. Furthermore, Khorana *et al.* (2005) point out that, in some countries, establishing a fund may be both costly and time-consuming, thus the mutual fund industry is likely to be smaller. Their final conclusion was that establishing fairly large mutual fund industries requires a combination of both supporting economic and regulatory factors.

The study carried out by James and Karceski (2006) focused on examining the retail and institutional funds' performance and exploring the differences available in institutional

funds. As MorningStar[10] puts it, "Funds that are offered to the general public in order to reach individual investors are called retail funds". Institutional funds, in contrast, are aimed at high net worth investors, where lower fees and expense ratios are charged on these funds. Also, investors need a minimum of $100,000 to invest. There are three key points (James and Karceski, 2006): firstly, minimum initial investment, secondly, affiliation with a bank and, thirdly, offering the same institutional fund to a retail customer. The database of the Center for Research in Security Prices (CRSP) was the data provider. A number of open-ended equity mutual funds were collected which distinguished between institutional and retail funds, and the data period was from 1995 to 2001. The results of the study did not imply any difference between the performance of institutional funds and that of retail funds. Institutional investors do not display the same behavioural characteristics as retail investors in terms of following past returns, and in addition, there is no significant relationship between fund inflows and past performance for institutional funds.

Finally, Ferreira *et al.* (2007), examining the performance of 10,568 open-ended mutual funds, attempted to find out whether fund performance is affected by a variety of country specific features like the difference in economic and financial developments. The investigation period covered the years from 1999 to 2005, and data was accumulated from 19 countries whose per capita GDP along with education and skill levels were analysed to identify their economic development. In the study, liquidity and transaction costs, demand for financial products, market-capitalisation to GDP ratio, and shareholder turnover ratios were used as financial development indicators. The final results show that in developed countries mutual funds operate better because of their liquid stock markets and a legal system that is robust enough to meaningfully guarantee the protection of shareholders' interests. According to Ferreira *et al.* (2007), trading is very costly for those countries with less developed markets.

[10] Morningstar, Inc. A corporation that provides research and advisory services to clients. Its clients tend to be institutional investors, though a wide range of investors read its advisory newsletters. Morningstar is particularly well-known for its one page newsletters on more than 2,000 mutual funds.

A full 27 years after the first study on fund performance, Ippolito (1989) carried out a further study on this issue to specifically test whether it would be possible for fund managers to compensate investors who invest in funds with a high expense ratio and a higher turnover of holdings with a commensurately higher rate of return or better. Studying 143 mutual funds from 1965 to 1984, he found that there is indeed a positive relationship between management fees, turnover ratios, and returns. Moreover, he found that mutual funds which contain higher management fees and turnover ratios are observed to display better performance. As a result, Ippolito (1989) concluded that it paid off for unaware investors to pay managers to invest their money.

Manystudies have been devoted to investigating the effects of the size of mutual funds and whether there is any profit in choosing mutual funds based on their wealth. Grinblatt and Titman (1992) attempted to investigate fund performance over the period 1975-1984; they ranked fund performance in terms of their asset size and divided them into quintiles, in the smallest of which some evidence for superior performance was discovered. However, considering performance net of expenses, there was not any significant difference between the returns of funds in the largest and smallest quintiles. Chang (2004) ateempted to apply a three-variable model, whose variables were beta, standard deviation, and size respectively. He intended to find out which of these variables created a high return. He concluded that a higher return is provided to investors by smaller funds containing both low beta and low standard deviation. Although economy activities increased during the research period, the study showed that funds with lower risk provide higher relative returns.

The possibility of explaining returns by fund wealth, turnover ratio, and management fees was explored by Droms and Walker (1996), who incorporated the study of 151 funds in their investigation. The findings showed a significant positive relationship between the return of the funds and their fees. However, no significant relationship was found between return, size, and turnover ratio. Droms and Walker (1994) performed the same study on international mutual funds, but they did not find any significant relationship. These studies prove the invalidity of asset size as a predictor of future performance.

However, since then, other studies have found the opposite of the findings mentioned above.

In the modern investment environment, investors are likely to invest heavily in mutual funds, and this has made yesterday's best performing mutual funds today's largest mutual funds, as Ciccotello and Grant (1996) found in their study based on earlier findings. They investigated whether funds' outperformance over their peers could continue to grow. They divided mutual funds into three groups, namely, aggressive growth, long-term growth, and growth/income, and four quartiles based on size. It was found that larger funds have a greater historical return but these returns start to reduce in future, while future returns are usually greater for small funds that are still in a growth phase. They also reported on the tendency of successful funds to grow more rapidly than those funds which perform poorly, and this is consistent with earlier studies. Among the three categories, a better performance for small mutual funds was evidenced in two categories: namely, aggressive growth and long-term growth. Unlike the findings of Grinblatt and Titman (1992), these significant differences were net of expenses. In summary, current size can be taken to afford investors some insight about the nature of future returns, and this conclusion is made on the basis of evidence provided by Ciccotello and Grant (1996). In addition, this study showed that in the case of using rebalanced portfolios, an investor who invests in the smallest quartile at the beginning of a ten-year period (1982-1992) and rebalances his portfolio after five years and again solely includes mutual funds in the smallest quartile at that point, will enjoy superior performance to that of an investor in the larger quartile.

Ciccotello and Grant's (1996) findings are in line with those of Dahlquist *et al.* (2000), who studied Swedish mutual funds invested in Swedish securities during 1993 to 1997. They also tried to determine whether fund size, management fees and turnover ratio are related to performance and past performance was additionally included as the fourth variable in their study. They disclosed that, on average, smaller mutual funds are likely to perform better than those that are bigger, and also observed that funds with higher turnover ratios perform better than funds with lower turnover ratios. Furthermore, the study showed that there is no significant correlation between high fees and high return. A

similar study of the Australian market was carried out by Gallagher and Martin (2005), in which the performance of mutual funds that were actively managed during 1991-2000 was examined. The study tried to evaluate the extent to which fund size and manager size are related to risk-adjusted return. Regarding asset size, the findings of their study did not confirm the hypothesis that mutual funds' performance is disadvantaged. Additionally, no difference in performance was reported between big and small funds.

'Size matters' were investigated by Indro, Jiang, Hu, and Lee (1999) by taking into consideration the likelihood of performance erosion by funds' wealth. As it is suggested by Indro *et al*., (1999) the larger the mutual fund, the more the diminishing marginal returns exceed the optimum fund size. Sometimes active managers cannot make the best use of information in the time available which results in diseconomies of scale. The study also emphasises the fact that most attention is drawn towards larger managers. Furthermore, it shows that the relative ability of larger managers to trade is increasingly constrained as asset size increases.

Chen *et al*. (2004) examined the probable dependence of performance on size during the period 1962-1999. The findings of their study significantly revealed that an increase in funds' size erodes performance, while the relationship was not affected by heterogeneity in fund style. Instead, the impact of fund size was found to be most pronounced for funds buying small cap stocks. This issue introduces liquidity as an important reason for performance erosion by size. The study further provides evidence for organisational diseconomies of scale related to hierarchy costs, suggesting them as an additional factor to liquidity. They also showed that mutual funds that belong to large fund companies performed better than other funds.

There is not a large body of research on investments made by funds across smaller capitalisation stocks regarding any effects of their smaller fund size. Recently, Christopherson *et al.* (2002) tried to discover how small cap funds' performance is related to fund wealth in the US. They examined this among 219 US small cap mutual funds and reported that there is a negative relationship between fund size and performance.

Carhart (1997) found a negative relationship between manager trades and return compared to the benchmark. Moreover, the study by Israelsen (1998) showed a correspondence of high turnover ratio with lower returns and higher expenses. Grant (2000) studied all American-registered mutual funds invested in American securities during the period 1975-1994. He tried to discover whether higher turnover ratios in the US, without regard to fund size, earned superior risk-adjusted returns compared to lower turnover funds. The study showed that superior managers have a higher propensity to change their portfolios.

As covered above, the difference in the performance between funds which are managed by teams and those managed by individuals has been well covered and is summarised by Prather *et al.* (2001), who discovered no significant difference between the two variables. Management structure generally however has not been as thoroughly studied and the information related to it is so scarce as to suggest that it is regarded as an irrelevant subject by academics. Gregory *et al.* (1997) found that mature funds perform better than younger funds (Gregory *et al*., 1997); however, Otten and Bams (2004) and Bauer *et al.* (2005) reported a inverse relationship between fund age and performance, meaning that younger funds are superior to mature ones. Finally, Peterson *et al*. (2001) reported no significant relationship between performance and fund age.

Reporting on earlier tests made by academics, Peterson *et al.* (2001) showed that management tenure and performance are not related to each other, something which was confirmed by Chevalier and Ellison (1999), who found no significant relationship between management tenure and return. To reach a final conclusion, Peterson *et al.* (2001) performed another study and disclosed an average return premium associated with manager tenure that is negative and not significant at the 5 per cent level, though significantly negative at the less stringent 10 per cent level. Along with these results, various studies in the literature result in different findings. Some poorly-performing managers have been entrenched, and this could have influenced the negative relationship Peterson *et al.* (2001). When choosing funds, considering management tenure as a screen is not something recommended by Peterson *et al*. (2001), as they do not see it as an economically meaningful action. This is due to the weak relationship between

management tenure and return, and the small coefficient. On the contrary, the study of Filbeck and Tompkins' (2004) conducted an investigation into the relationship between return and management tenure of fund returns in the period 1999-2001. The relationship was found to be significant, showing that longer-tenure managers performed better than the medium-term or short-term managers.

4.10. CONCLUSION

All that has so far been said about assessment of performance evaluation methods leads to the conclusion that no one method stands universally superior to any of the others in measuring mutual fund performance. The purpose of the fund determines the appropriate measure to be used. If the fund is the only asset invested, the *SR*, *MM* or *alpha* are the most useful performance measures. However, if the fund is part of a bigger diversified portfolio, the *TR* seems to be an appropriate choice, and, finally, if an active portfolio is to be mixed with a passive one, the *IR* seems to be the preferred method of evaluating performance.

There have been many studies that have focused on various issues related to the mutual fund industry. One of the interesting aspects of investment for investors has always been the subject of evaluating the performance of their mutual funds. While there have been many studies that have evaluated the investors' performance almost entirely based on the rate of return, other studies of mutual fund performance have primarily investigated the merits of stock selection and market timing. Nevertheless, several fund characteristics, discussed in this chapter, that influence performance should also be considered.

After presenting the available models and measurement techniques, the following chapter aims to conduct an empirical case study for this research and present the findings. Thus, this chapter in a way works as model selection chapter in addition to being a model and measurement oriented literature survey chapter.

CHAPTER 5

: EMPIRICAL ANALYSIS: DATA, MODEL AND FINDINGS

5.1. INTRODUCTION

This study aims to examine and analyse the differential performance between the Islamic, ethical equity and conventional equity funds alongside the Dow Jones Islamic market index (DJIMI), S&P 500, FTSE4Good Global Index, MSCI AC World Index alongside Ramadan impact and oil prices. After discussing the foundational and modelling issues in earlier chapters, this chapter, hence, details the empirical analysis process and presents the findings.

It should be noted that the model developed in this study takes into consideration most of the variables considered earlier within the literature review that affects mutual fund performance. Additionally, it tests the relationship in the short and long run periods between oil prices and Islamic mutual fund performance. This is in addition to the previous assessment test for any observable Ramadan effect on the performance of Islamic mutual funds.

The chapter continues as follows. Section 5.2 describes the data selection and collection. Section 5.3 presents the methodological framework followed, which consists of the model and hypotheses. The measurement of the variables is described in Section 5.4, before the final section describes the statistical techniques employed.

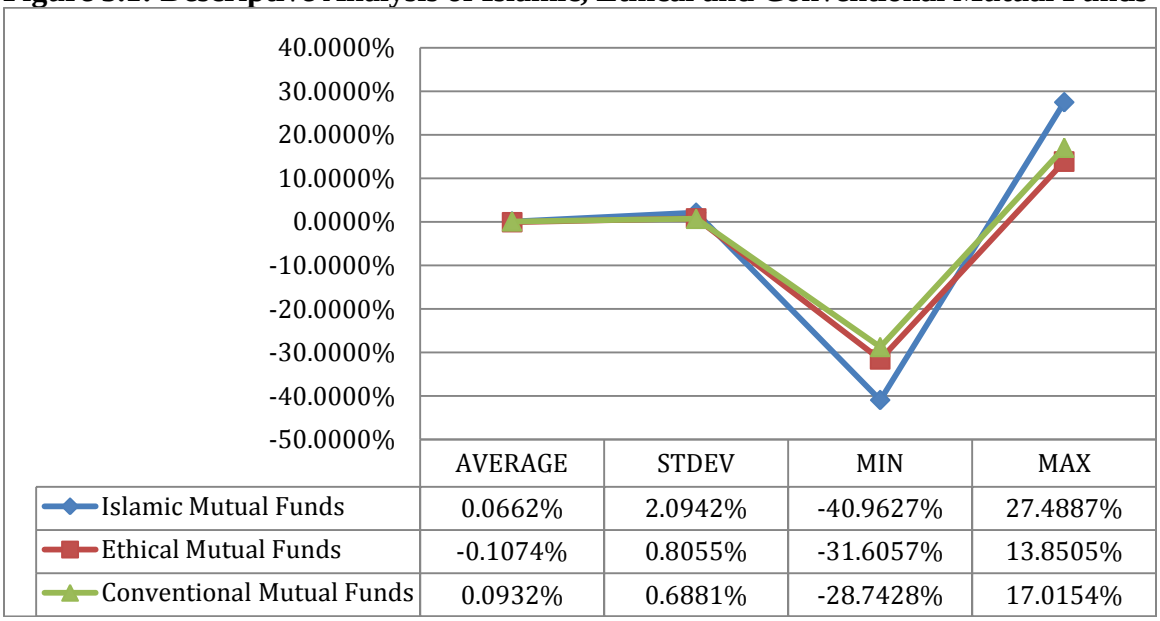
5.2. DATA SELECTION AND DATA COLLECTION

The dataset utilised in this study consists of monthly net asset value (NAV) per unit prices of 52 Islamic equity funds, 63 ethical equity funds and 100 conventional equity funds. The data was sourced from Bloomberg at the National Investment Company (NIC) in Kuwait. This sample was selected from a larger sample such that it only includes Islamic funds which mainly invest in equity. The sample for the Islamic equity funds represents nearly half of the funds currently in existence.

5.2.1. Descriptive Statistical Analysis

Table 5.1 below provides the descriptive statistics on Islamic mutual funds, the Ethical mutual funds and the Conventional mutual funds. As shown in the fuqure all three funds virtually have similar mean values, and maintain almost same level of dispersion. However, in terms of minimum and maximum values, the Islamic mutual funds differ from the two; the latter has lowest minimum value (-40.96%) and the highest maximum value (27.49%) compare to other two funds, albeit for the latter two funds the minimum value is also negative.

Figure 5.1: Descriptive Analysis of Islamic, Ethical and Conventional Mutual Funds



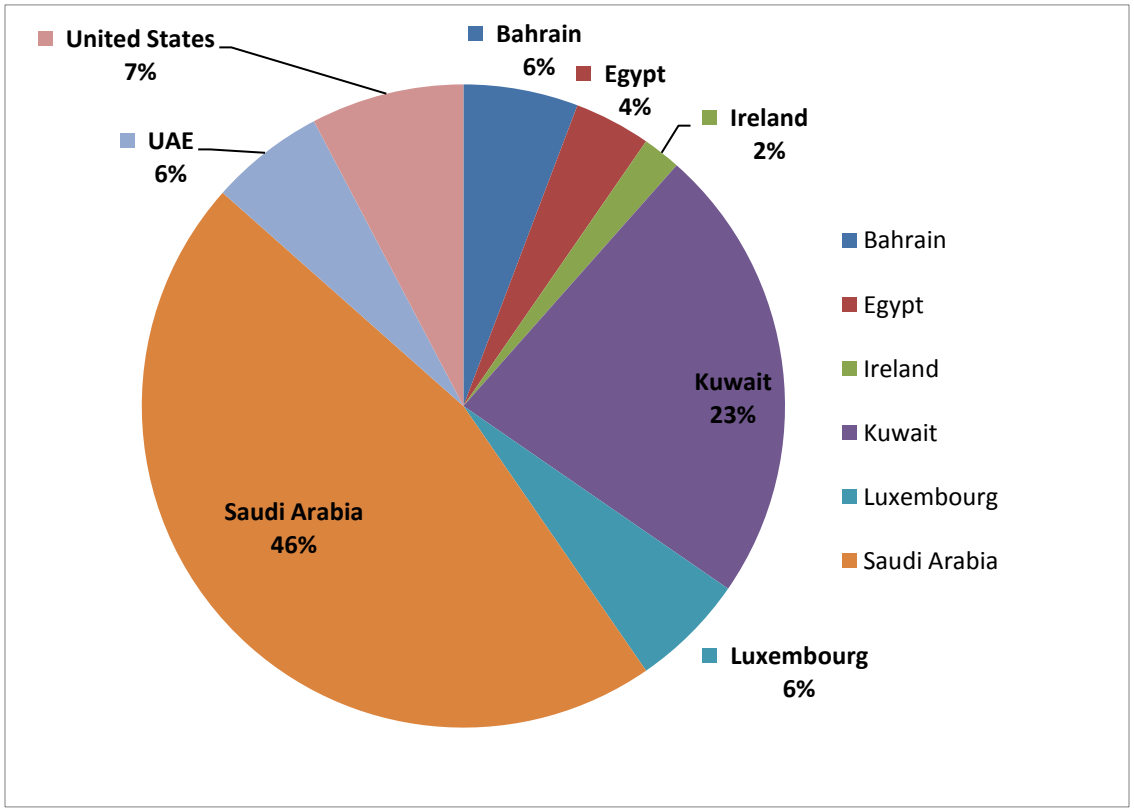
	AVERAGE	STDEV	MIN	MAX
Islamic Mutual Funds	0.0662%	2.0942%	-40.9627%	27.4887%
Ethical Mutual Funds	-0.1074%	0.8055%	-31.6057%	13.8505%
Conventional Mutual Funds	0.0932%	0.6881%	-28.7428%	17.0154%

Source: Bloomberg (2010)

Regarding the geographical concentration of the Islamic mutual funds, 46 percent of the funds, used in this study, are dominated in Saudi Arabia (figure, 5.2) which clearly indicates that the latter dominates the Islamic mutual funds' ownership. However, it is worth mentioning that, it is not necessary that the assets of those funds are invested in the same country (Saudi Arabia for this matter). For example, if Saudi Arabia based company establishes a new Islamic mutual fund, normally it supposes to declare the investment strategy for that fund, which usually reveals that where the assets of that fund

are invested. However, in practice, companies often do not disclose their investment strategies; therefore, it is hard to find out where the funds' assets are invested. Among other countries/regions shown in figure 5.2, the USA with 7 percent share is the second largest place where the Islamic mutual funds are own. Likewise, Bahrain and UAE and Luxembourg with 6 percent share respectively have third largest shares of the funds.

Figure 5.2: Geographical Focus of the Islamic Mutual Funds



Source: Bloomberg (2010)

This study examines monthly data of equity funds for those which are domiciled and those which operate globally within the period January 2004 until December 2009. The dataset holds information related to monthly net asset values (NAV), management fees, Dow Jones Islamic Market Index (DJIMI) returns,a screened subset of 2000 *Shariah*-compliant equities included in the broader Dow Jones World Index, S&P 500 Index returns, FTSE4Good Global Index returns, MSCI AC World Index returns and oil prices. In addition, a price-weighted and equal-weighted price for all mutual funds in each

portfolio (Islamic, ethical and conventional) was calculated in order to test the comparative performance. Net Asset Value, which is the value of a unit less its liabilities, is often measured in relation to the mutual funds. For the measurement of Net Asset Value, this study standardises it from the beginning of the period in order to harmonise the Net Asset values (NAVs) of all mutual funds. The standardisation of the mentioned funds is expected to help in calculating their performance. The growth or change in NAV is calculated by subtracting previous period from the current value and dividing the difference by the current value and then multiplying the outcome by 100 would give us the Net Asset Value.

In an Islamic equity mutual fund, screening process examines the stock company's source of income and any other activity that is greater than 10 percent, indicating that the stock of the company is deleted from the market (Iqbal and Molyneux, 2005). In addition, it may also be relevant here to mention that the principal portion payments of a company's stock is done in that case when ratio is shown greater than 33 percent, and in an Islamic mutual fund, such a company's stock is not permitted to function. This is known as negative screening using financial statements.

5.3. METHODOLOGICAL FRAMEWORK

The following hypotheses are tested for different time periods - the whole period, from January 2004 until December 2009, a bearish period from January 2004 until March 2008 and a bullish period from May 2008 until March 2009:

> H_1: There is no significant difference between the performance of an Islamic mutual fund and a conventional mutual fund (on both a price-weighted and equal-weighted basis).
>
> H_2: There is no significant difference between the performance of an Islamic mutual fund and an ethical mutual fund (on both a price-weighted and equal-weighted basis)

H_3: There is no significant difference between the performance of an Islamic mutual fund and the Dow Jones Islamic Market Index (DJIMI) (on both a price-weighted and equal-weighted basis)

H_4: There is no significant difference between the performance of an Islamic mutual fund and the S&P 500 (on both a price-weighted and equal-weighted basis)

H_5: There is no significant difference between the performance of an Islamic mutual fund and the FTSE4Good Global Index (on both a price-weighted and equal-weighted basis)

H_6: There is no significant difference between the performance of an Islamic mutual fund and the MSCI AC World Index (on both a price-weighted and equal-weighted basis)

Statistical analysis was conducted using *t*-tests for all six mentioned hypotheses. Following Abdullah *et al.* (2007), the period of the study is divided into two periods - before the financial crisis and during the financial crisis – in order to test the effects of bearish and bullish periods on the results.

Most of the articles documented in the literature review compared the performance of mutual funds using Sharpe and Treynor Ratios, which require both the relevant standard deviation and *beta* figures in order to test for the fund's performance. This would require a large number of observations so as to obtain these figures. On the other hand, the available data for the net asset value is provided on a monthly basis, and so this study period contains only 72 months which makes it difficult to calculate both the Sharpe and Treynor ratios. This research examines these ratios and additionally *t*-tests conducted based on the performances of the funds.

Secondly, this research investigates the effect of management fees on the Islamic mutual fund performance taking into consideration the differences in management fees for each fund. The model used is as follows:

Islamic mutual fund performance = α + β net asset value +β management fee

For this the following hypotheses are developed:

H_6: There is no significant effect of the net asset value on the Islamic mutual fund performance.

H_7: There is no significant effect of the management fee on the Islamic mutual fund performance.

After examining the effects of management fees on the Islamic mutual funds performance a Generalized Method of Moments (*GMM*) regression test is conducted in order to test the effect of each of the independent variables on the dependent variable.
As regards to the impact of oil prices on the performance of Islamic mutual funds, the following hypotheses are developed:

H_8: There is a unit root in the oil prices.

H_9: There is a unit root in the Islamic mutual fund performance.

H_{10}: There is no long-run relationship between the Islamic mutual fund performance and oil prices.

H_{11}: Oil prices do not affect the Islamic mutual fund performance.

H_{12}: Islamic mutual fund performance does not affect the oil prices.

The tests are conducted to examine the cointegration and causality between oil prices and Islamic mutual fund performance in order to ascertain whether there is any relation in the long or short run between the oil prices and the Islamic mutual fund performance. Time-series analysis is undertaken according to Driesprong *et al.* (2003), who find that changes in oil prices strongly predict future stock market returns in many countries in the world.

As mentioned, this study additionally analyses the effect of Ramadan. This study will examine the Islamic mutual funds from all over the globe and control for the effects of Ramadan, as formulated below (Fazal, 1998):

$$Islamic\ mutual\ fund\ performance = \alpha + \beta D_t$$

where $D_t = 1$ if it is Ramadan month or zero otherwise.

The following hypothesis is developed accordingly:

H_{13}: There is no significant effect for the month of Ramadan on the Islamic mutual fund performance

5.4. ECONOMETRIC METHODS

This section identifies the econometrics tools used to analyse data for this study.

The regressions follow the *Generalized Method of Moments* (GMM) regression testing framework to examine the effect of each of the independent variables on the dependent variable. This regression does not require information on the exact distribution of the disturbances. In fact, many common estimators in econometrics can be considered as special cases of the GMM. For example, the ordinary least-squares estimator can be viewed as a GMM estimator in the case that each of the right-hand variables is uncorrelated with the residual. Time-series (HAC) Generalized Method of Moments estimates are robust measure for heteroskedasticity and do not suffer from autocorrelation of an unknown form.

Paired sample t-test is conducted in cases, the variances and standard deviations of two populations are unknown. More commonly, the only information available is that related to the sample collected, where we can obtain the sample mean, the sample variance, and the sample standard deviation. If the assumptions are made such that the samples are collected randomly and independently, drawn from populations that are normally distributed so that the population variances are equal, then a pooled-variance t-test can be used in order to determine whether there is a significant difference between the means of the two populations. Therefore, statistical t-test's will be used to find out the mean, variances and standard deviation (Berenson *et al.*, 2002).

Unit root test is also used, as Autoregressive Moving-Average (ARMA) models require that the statistical inputs must be a stationary time-series. A series is said to be (weakly or covariantly) stationary if the mean and autocovariances of the series do not depend on time. Any series that is not stationary is said to be nonstationary, and will include a unit root, such that the number of differences (*d*) it takes for us to render the data stationary will define the level of stationarity, denoted *I(d)*. Typically, for a time-series to be rendered stationary, we must first-difference the observations, as in converting prices to returns, rendering the series an *I(1)* process.

A common example of a nonstationary series is the random walk denoted as:

$$y_t = y_{t-1} + \varepsilon_t$$

where ε is a stationary random disturbance term. The series *y* has a constant forecast value, conditional on time *t*, while the variance increases over time. The random walk is a *I(1)* stationary series, since the first difference of y is stationary as follows:

$$y_t - y_{t-1} = (1-L)y_t = \varepsilon_t$$

A first-difference stationary series is said to be integrated and is denoted as *I(d)* where *d* is the order of integration. The order of integration is the number of unit roots contained in the series, or the number of differencing operations it takes to make the series stationary. For the example of a random walk as shown above, there is one unit root, so it is an *I(1)* series. Similarly, a stationary series is *I(0).*

Standard inference procedures do not apply to regressions, which contain an integrated dependent variable or integrated regressors. Therefore, it is important to check whether a series is stationary or not before using it in a regression. The formal method to test the stationarity of a time-series is the unit root test: Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP).

Granger causality test is another method used to analyse data in this study. The Granger (1969) approach to the question of whether an independent variable (*x*) causes variation

in the dependent variable (*y*) is to see how much of the current value of y can be explained by its past values. We should then move to examine whether adding lagged values of the independent *x* can improve the explanatory power of the model. The dependent variable *y* is said to be Granger caused by *x* if *x* helps in the prediction of *y*, or equivalently if the coefficients on the lagged *x* values are statistically significant. It should be noted that a two-way causation is frequently found such that *x* Granger causes *y* and *y* Granger causes *x*.

It is important to address that the statement '*x Granger causes y*' does not imply that *y* is the effect or the result of *x*. Granger causality measures precedence and information content but does not by itself indicate causality in the more common use of the term.

A primary step to follow when selecting the Granger causality view is to define the number of lags to be used in the test regressions. In general, it is better to use more rather than fewer lags, since the theory is bedded in terms of the relevance of all past information. You should pick a lag length that corresponds to reasonable beliefs about the longest time over which one of the variables could help predict the other.

EViews runs bivariate regressions of the form:

$$y_t = \alpha_0 + \alpha_1(y_{t-1}) + \beta(x_1) + \beta_1(x_{t-1}) + \epsilon_t$$

$$x_t = \alpha_0 + \alpha_1(x_{t-1}) + \beta(y_1) + \beta_1(y_{t-1}) + \epsilon_t$$

For all possible pairs of an (*x*, *y*) series in the group, the reported *F*-statistics are the Wald statistics for the joint hypothesis, the null and alternative hypotheses, respectively, are reported as follows:

$$H_0: \alpha_1 = 0;\ \beta_1 = 0;\ \beta_2 = 0$$

$$H_1: \alpha_1 \neq 0;\ \beta_1 \neq 0;\ \beta_2 \neq 0$$

For each equation, the null hypothesis is that '*x does not Granger cause y*' in the first regression and that '*y does not Granger cause x*' in the second regression. The test results are given by:

Pairwise Granger Causality Tests			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Probability
Oil Prices does not Cause Islamic Mutual Funds	2444	4.66222	0.00953
Islamic Mutual Funds does not Cause OIL Prices		0.49541	0.60938

For this example, we can reject the hypothesis that the 'oil Prices does not Granger cause the Islamic mutual funds', but we cannot reject the hypothesis that the 'Islamic mutual funds does not Granger cause Oil Prices'. Therefore, it appears that Granger causality runs one-way from the 'oil prices to the Islamic mutual funds but not the other way'. The table relates to the hypotheses 11 and 12, which relates to the causality and effect of the oil prices and the Islamic mutual funds.

As part of time series analysis, *cointegration test* is also used. The finding that many macroeconomic time-series may contain a unit root has spurred the development of the theory of non-stationary time series analysis. Engle and Granger (1987) pointed out that a linear combination of two or more non-stationary series may be stationary. If such a stationary linear combination exists, then the nonstationary time-series are said to be cointegrated. The stationary linear combination is called the cointegrating equation and may be interpreted as a long-run equilibrium relationship among the variables.

Two types of test statistics are reported in the cointegration results table. The first block reports the so-called trace statistics, and the second block reports the maximum eigenvalue statistics. For each block, the first column is the number of cointegrating relations under the null hypothesis, the second column is the ordered eigenvalues of the Π matrix, the third column is the test statistic, and the last two columns are the 5% and 1% critical values. The (non-standard) critical values, which are taken from Osterwald-Lenum (1992), differ slightly from those reported in Johansen and Juselius (1990).

To determine the number of cointegrating relations conditional in general on the assumptions made about the trend, we can proceed sequentially from *r =0* to *r = k-1* until we fail to reject the null hypothesis. The result of this sequential testing procedure is reported at the bottom of each table block.

The trace statistic reported in the first block tests the null hypothesis of *r* cointegrating relations against the alternative of *k* cointegrating relations, where *k* is the number of endogenous variables, for *r = 0, 1,.....,k-1*. The alternative of *k* cointegrating relations corresponds to the case where none of the series has a unit root and a stationary *VAR* may be specified in terms of the levels of all of the series. The trace statistic for the null hypothesis of *r* cointegrating relations is computed as:

$$LR_{tr}(r/k) = -T\sum_{i=r+1}^{k}\log(1-\lambda_i)$$

where λ_i is the *i-th* largest eigenvalue of the Π matrix which is reported in the second column of the output table.

The second block of the output reports the maximum eigenvalue statistic which tests the null hypothesis of r cointegrating relations against the alternative of *r+1* cointegrating relations. This test statistic is computed by Eview as:

$$LR_{\max}(r/r+1) = -T\log(1-\lambda_{r+1}) = LR_{tr}(r/k) - LR_{tr}(r+1/k)$$

for r = 0, 1, 2, 3, ……, k-1.

5.5. EMPIRICAL FINDINGS

Based on the identified econometrics methods above, data assembled are analysed and the findings are reported in the following sections.

5.5.1. Unit Root Test Results

A prerequisite for applying the Johansen cointegration procedure is to ensure the series is free of any unit-roots such that it is stationary. To do this, as identified Phillips-Perron

(PP) procedure as well as the augmented Dickey-Fuller (ADF) test is used. The null hypothesis is that there is a unit root in the Islamic equity fund returns, while there should also be a unit root present in the oil mean returns. If the null hypothesis is rejected, then it means that the time-series is stationary.

Table 5.1: Unit Root Tests - Augmented Dickey-Fuller Test

Augmented Dickey-Fuller	Intercept		Intercept and Trend		No Intercept No Trend	
	Level	1st Difference	Level	1st Difference	Level	1st Difference
Islamic Equity Fund	-5.722*	-9.910*	-5.707*	-9.833*	-5.713*	-9.983*
Oil returns	-6.285*	-13.268*	-6.282*	-13.173*	-6.182*	-13.364*

* Significance is shown at the 1% (***), 5% (**) and 10% (*) levels respectively.

The results in Table 5.1 show that the null hypothesis of having a unit root has been rejected under the augmented Dickey-Fuller test at the 1%, 5% and 10% significance levels under three specifications: with an intercept, with an intercept and trend, and without an intercept or trend whereby the Islamic equity fund returns and the oil mean returns are modelled. This indicates that the three series are stationary following a *I(0)* process at the 10 % significance level, and at the first difference *I(1)* at 10 % significance level.

Table 5.2: Unit Root Tests - Phillips-Perron

Phillips-Perron	Intercept		Intercept and Trend		No Intercept No Trend	
	Level	1st Difference	Level	1st Difference	Level	1st Difference
Islamic Equity Fund	-5.675*	-29.985*	-5.660*	-31.539*	-5.664*	-30.391*
Oil returns	-6.369*	-18.975*	-6.367*	-18.893*	-6.270*	-19.144*

* Significance is shown at the 1% (***), 5% (**) and 10% (*) levels respectively.

The results in table 5.2. show that the null hypothesis of the presence of a unit root has been rejected following the Phillips Perron testing procedure at the 1%, 5% and 10% significance levels under the three specifications: with an intercept, with an intercept and trend, and without an intercept or trend for Islamic equity fund returns and for the oil

mean returns. This indicates that the three specifications are stationary following a *I(0)* process at the 10% significance level, and at the first difference of the *I(1)* processes at a 10% significance level.

5.5.2. Granger Causality Test Results

The findings in table 6.3 indicate that the Islamic equity fund returns caused the mean oil prices at first lag while the mean oil prices did not cause the Islamic equity fund return at the first lag. The null hypothesis of, first lag Islamic equity funds do not cause the mean oil prices, is rejected at 1% level of significance. Highly significant F-value (7.637) suggests that the Islamic equity fund returns play a vital role in determining the mean oil prices. It reveals that last period returns in Islamic equity funds have an impact to shape current oil prices. On the contrary, the study fails to reject the null hypothesis that one period lag prices of oil Granger caused the Islamic equity funds returns. The insignificant F- value (0. 03130) suggests that one time lag mean oil prices do not determine the current returns of Islamic equity.

Table 5.3: Granger Causality Tests with First Difference

Pairwise Granger Causality Tests			
Sample: 2004M01 2009M12			
Null Hypothesis:	Obs	F-Statistic	Probability
OILP* does not Granger Cause ISLPW	71	0.03130	0.86009
ISLPW** does not Granger Cause OILP	71	7.63722	0.00735
OILP (lag 2) does not Granger Cause ISLPW	70	1.58834	0.21209
ISLPW(lag 2) does not Granger Cause OILP	70	4.00434	0.02291
OILP (lag 3) does not Granger Cause ISLPW	69	0.83892	0.47769
ISLPW (lag 3) does not Granger Cause OILP	69	2.65036	0.05653
OILP (lag 4) does not Granger Cause ISLPW	68	0.98822	0.42109
ISLPW (lag 4) does not Granger Cause OILP	68	2.08676	0.09392
OILP (lag 5) does not Granger Cause ISLPW	67	1.31031	0.27288
ISLPW (lag 5) does not Granger Cause OILP	67	1.82168	0.12341

Note: *Mean Oil Prices; **Islamic Mutual Funds Price weighted Portfolio

The results in Table 5.3 show that the Islamic equity fund returns caused the mean oil prices at lag 2 while the mean oil prices did not cause the Islamic equity fund return at lag 2. Similarly to Granger Causality test that has been discussed earlier, with two periods lag, the null hypothesis of Islamic mutual fund returns do not determine the oil mean prices is rejected at 5 % level of significance. It suggests that the two periods lag performance of Islamic mutual funds portfolio has an impact on current oil prices. However, it is important to note that the F-test (1.588) is significant at 5 % rather than 1 % as was observed with one period lag Granger causality test. The probability value with two periods lag (0.0229) is higher than one that of one period lag (0.00735). It shows that although the impact of Islamic mutual fund returns remains after two lag, but with less effectiveness as compare to one period lag. On the other hand, the study is failed to reject the null hypothesis of no Granger cause of mean of oil prices on Islamic mutual fund returns. As was the case with one period lag, two periods lag mean oil prices do not determine the current performance of Islamic mutual fund returns.

Table 5.3 shows the results for the Granger causality test results for the third lag. The findings of the study reveal that Islamic equity fund returns caused the oil mean prices at lag 3 while the oil mean prices did not cause the Islamic equity fund return at lag 3.

With three period lags, the Granger causality test shows that the mean oil prices does not have deterministic role in Islamic equity fund returns. Thus, the study fails to reject the null hypothesis. However, with three periods lag Granger causality test the null hypothesis of Islamic mutual fund returns do not cause the oil prices is rejected at 10 % level of significance. Nevertheless, with three periods lag the Islamic mutual fund returns Granger caused the mean oil prices with 10 % level of significance, against 1% and 5% respectively with one period lag and two periods lag as observed earlier. The F-statistic with 0.05653 value shows that Islamic mutual fund returns still cause the mean oil prices, but the its effectiveness is much lesser than what it was with one period lag and two period lags.

The results of Table 5.3 below indicate that the Islamic equity fund returns caused the mean oil prices at lag 4, while the mean oil prices did not cause the Islamic equity fund return at lag 4.

On fourth lag, the stud rejects the null hypothesis on the Granger cause of Islamic mutual fund returns on mean oil prices. However, as the probability value of F-Statistic (009392) in table 5.3 shows that the test is barely significant at 10 %. Decreasing significance level suggests that as time goes on, Islamic mutual fund returns become less effective.

On the Granger cause of the mean oil prices on Islamic mutual fund returns with four, the study fails to reject the null hypothesis. It suggests that oil prices do not have any deterministic role in explanatory role in determining the Islamic mutual fund returns.

The result shown in Table 5.3 indicate that the Islamic equity fund returns did not cause the oil mean prices at lag 5, nor did the oil mean prices cause the Islamic equity fund return at lag 5.

With five periods lag the study is failed to reject the null hypothesis of no Granger cause of mean oil prices on Islamic mutual fund returns. Similarly, the null hypothesis is also rejected on the Granger cause of Islamic mutual fund returns on mean oil prices with five period lags. What is worth noting with five periods lag is that the Granger cause of Islamic fund returns on mean oil prices is disappear, which is contrary to what has been seen with one, two, three and four period lags.

From this section the study concludes that the mean oil prices do not Granger caused Islamic mutual fund returns. The study noticed that no matter what period lag is used, the mean oil prices appear not have any impact on Islamic mutual fund returns. On the contrary, however, the study concludes that Islamic mutual fund returns have a noticeable impact on mean oil prices. Nevertheless, the impact lapses with number of lags. For instances, it is observed that with five periods lag the Islamic mutual fund returns seem not to play any deterministic role mean oil prices.

5.5.3. Cointegration Results

To test the presence or absence of a long-run relationship between the variables, the Johansen procedure employs two likelihood ratio (LR) test statistics: the maximal eigenvalue (λ-*max*) and the trace ratio (*Tr*). The null hypothesis under maximal eigenvalue (λ-*max*) is that the number of cointegrations is set at *r*, tested against the alternative hypothesis that the number of cointegrations is equal to $r + 1$. The null hypothesis under the (λ-*trace*) is that the number of cointegrations is less than or equal to r against the alternative that there is greater than *r*.

The results of Table 5.4 indicate the presence of cointegrations between the Islamic equity fund returns and mean oil prices under the assumption that there is a linear deterministic trend in the data and that there is no trend in VAR, which means that it is possible to forecast using the historical prices of the other series in the long run.

Table 5.4: Johansen Cointegration Test

Sample (adjusted): 2004M04 2009M12
Included observations: 69 after adjustments
Trend assumption: Linear deterministic trend
Series: ISLPW OILP
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesised No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.283684	33.74588	15.49471	0.0000
At most 1 *	0.143958	10.72509	3.841466	0.0011

Trace test indicates cointegration of eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
** p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesised No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.283684	23.02078	14.2646	0.0016
At most 1 *	0.143958	10.72509	3.841466	0.0011

Max-eigenvalue test indicates cointegration of eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

5.5.4.1. Islamic Mutual Funds Vs. Other Funds.

In order to compare the Islamic mutual funds with other funds, this section uses the t-test, which shows the statistical significance of the results among the data examined. The t-test helps to compare the performance of Islamic mutual fund with other funds.

The data was separated into two portfolios - a price-weighted portfolio and an equal-weighted portfolio to answer all the research questions and cover all the hypotheses addressed in this research. Also, the data was segregated into three periods: the whole period (January 2004-December 2009), a bullish period (January 2004-March 2008) and a bearish period (May 2008-March 2009). The bullish market is described as a market during which the investment prices will increase faster than their historical trends and averages. Bullish markets are normally take place as a result of multiple factors, including a financial and economic boom, a sound economic recovery and investments' sentiments. In US market, for example, the longest bullish period happened in early 1990s that lasted with Dot Com bubble crisis in 2000-01. During this period the US equity markets grow at the fastest rate ever. The bearish market on the other hand is the market during which the investment prices generally decline over a prolonged period of time. The sub-prime mortgage crisis in 2008 and continues till writing that hit virtually all major financial markets in the world is the classic example of bearish market.

Table 5.5: Price-weighted Islamic vs. Ethical Mutual Funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1 islp - ethp	-.00139	.03078	.00363	-.00862	.00584	-.383	71	.703

The results in Table 5.5 show that the null hypothesis 2 (There is no significant difference between the performance of an Islamic mutual fund and an ethical mutual fund (on both a price-weighted and equal-weighted basis) cannot be rejected: there is no statistically significant difference between the Islamic equity fund performance and the ethical equity fund performance for the price weighted portfolios because the *p*-value is greater than the 5% significance level.

Table 5.6: Price-weighted Islamic vs. Conventional Mutual Funds

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islp - conp	-.00597	.07565	.00892	-.02375	.01180	-.670	71	.505

Table 5.6 shows that the null hypothesis 1 (There is no significant difference between the performance of an Islamic mutual fund and a conventional mutual fund on both a price-weighted and equal-weighted basis) cannot be rejected: there is no significant difference between Islamic equity fund performance and conventional equity fund performance for the price-weighted portfolios because the p-value is greater than the 5 % significance level.

Table 5.7: Price-Weighted Islamic Mutual Funds vs. (DJIMI)

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islp - djim	-.00028	.01678	.00198	-.00422	.00367	-.140	71	.889

Table 5.7 shows that the null hypothesis 3 (There is no significant difference between the performance of an Islamic mutual fund and the Dow Jones Islamic Market Index (DJIMI) (on both a price-weighted and equal-weighted basis) cannot be rejected, as there is no statistically significant difference between the Islamic equity fund performance and the Dow Jones Islamic Market World performance for price-weighted portfolios because the *p*-value is greater than the 5% significance level.

Table 5.8: Price-weighted Islamic Mutual Funds vs. FTSE4Good Global index

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islp - ggl	.00250	.01941	.00229	-.00206	.00706	1.093	71	.278

The results of Table 5.8 show that there is no significant difference between the performance of the Islamic equity fund and the FTSE4Good Global Index for price-weighted portfolios because the p-value is greater than the 5% significance level. Hence, the null hypothesis 5 cannot be rejected:

Table 5.9: Price-weighted Islamic Mutual Funds vs. S&P 500

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islp - spx	.00375	.01865	.00220	-.00063	.00813	1.706	71	.092

The results in the table 5.9 shows that the null hypothesis 4 (There is no significant difference between the performance of an Islamic mutual fund and the S&P 500 (on both a price-weighted and equal-weighted basis) cannot be rejected. Since the *p*-value is greater than the 5% significance level, there is no statistically significant difference between the performance of the Islamic equity fund and the S&P 500 INDEX for the price-weighted portfolios. But we can reject the null hypothesis 4, as there is statistically significant difference between the Islamic equity fund performance and the S&P 500 INDEX performance because the *p*-value is less than the 10% significance level.

Table 5.10: Price-weighted Islamic vs. MSCI

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islp - msci	.00056	.01838	.00217	-.00376	.00487	.257	71	.798

The results in Table 5.10 show that the null hypothesis 6 (There is no significant difference between the performance of an Islamic mutual fund and the MSCI AC World Index (on both a price-weighted and equal-weighted basis) cannot be rejected: there is no statistically significant difference between the performance of the Islamic equity fund and the MSCI AC WORLD Index for price-weighted portfolios because the *p*-value is greater than the 5 % significance level.

Table 5.11: Equally-weighted Islamic *vs.* DJIMI

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	isle - djim	-.00097	.01680	.00198	-.00492	.00297	-.491	71	.625

The results of Table 5.11 show that the null hypothesis 3 (There is no significant difference between the performance of an Islamic mutual fund and the Dow Jones

Islamic Market Index (DJIMI) (on both a price-weighted and equal-weighted basis) cannot be rejected: there is no significant difference between the performance of the Islamic equity fund and the Dow Jones Islamic Market World performance for equal weighted portfolios because the P-value is greater than the 5% significance level.

Table 5.12: Equally-weighted Islamic vs. Ethical Mutual Funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 isle - ethe	-.00013	.01969	.00232	-.00475	.00450	-.054	71	.957

The results in Table 5.12 show that the null hypothesis 2 (There is no significant difference between the performance of an Islamic mutual fund and an ethical mutual fund (on both a price-weighted and equal-weighted basis) cannot be rejected: there is no significant difference between the performance of the Islamic equity fund and the ethical equity fund for equal-weighted portfolios because the *p*-value is greater than the 5% significance level.

Table 5.13: Equally-weighted Islamic vs. Conventional Mutual Funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 isle - cone	-.00167	.01839	.00217	-.00599	.00265	-.769	71	.444

The results in Table 5.13 show that the null hypothesis 1 (There is no significant difference between the performance of an Islamic mutual fund and a conventional mutual fund (on both a price-weighted and equal-weighted basis) cannot be rejected: there is no significant difference between the performance of the Islamic equity fund and the conventional equity fund for equal-weighted portfolios because the *p*-value is greater than the 5% significance level.

Table 5.14: Equally-weighted Islamic vs. FTSE4Good Global index

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	isle - ggl	.00181	.02030	.00239	-.00297	.00658	.755	71	.453

The results of Table 6.14 indicate that the null hypothesis 5 (There is no significant difference between the performance of an Islamic mutual fund and the FTSE4Good Global Index (on both a price-weighted and equal-weighted basis) cannot be rejected: there is no significant difference between the performance of the Islamic equity fund and the FTSE4Good Global Index for equal-weighted portfolios because the p-value is greater than the 5% significance level.

Table 5.15: Equally-weighted Islamic vs. S&P 500

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	isle - spx	.00306	.02094	.00247	-.00186	.00798	1.238	71	.220

The results in Table 5.15 depicts that the null hypothesis 4 (There is no significant difference between the performance of an Islamic mutual fund and the S&P 500 (on both a price-weighted and equal-weighted basis) cannot be rejected: there is no significant difference between the performance of an Islamic equity fund and the S&P 500 INDEX for equal-weighted portfolios because the *p*-value is greater than the 5% significance level.

Table 5.16: Equally-weighted Islamic vs. MSCI

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	isle - msci	-.00014	.01880	.00222	-.00456	.00428	-.063	71	.950

The results in Table 5.16 depicts that there is no significant difference between the performance of the Islamic equity fund and the MSCI AC World Index for equal-weighted portfolios because the p-value is greater than the 5% significance level. Thus, the null hypothesis 6 cannot be rejected

5.5.4.2. Testing Bearish Period: May 2009 – March 2009

This subsection explains whether or not a difference exists between Islamic equity funds performance and Dow Jones Islamic Market World for price-weighted portfolios in the bearish period.

Table 5.17: Price-weighted Islamic vs. DJIMI

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islpw - djim	.00800	.02251	.00712	-.00810	.02410	1.124	9	.290

The results in Table 5.17 depicts that there is no significant difference between the performance of the Islamic equity fund and the Dow Jones Islamic Market World for price-weighted portfolios in the bearish period because the *p*-value is greater than the 5 % significance level. Thus, the null hypothesis 3 (There is no significant difference between the performance of an Islamic mutual fund and the Dow Jones Islamic Market Index (DJIMI) (on both a price-weighted and equal-weighted basis) cannot be rejected.

Table 5.18: Price-weighted Islamic vs. Ethical Mutual Funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islpw - ethpw	.01600	.04766	.01507	-.01809	.05009	1.062	9	.316

The results in Table 5.18 reveal that there is no significant difference between the Islamic equity fund and the ethical equity fund for price-weighted portfolios in the bearish period because the p-value is greater than the 5% significance level. Thus, the null hypothesis 2 (There is no significant difference between the performance of an Islamic mutual fund and an ethical mutual fund (on both a price-weighted and equal-weighted basis) cannot be rejected.

Table 5.19: Price-weighted Islamic vs. Conventional Mutual Funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islpw - conpw	.07400	.13125	.04151	-.01989	.16789	1.783	9	.108

The results of Table 5.19 show that there is no significant difference between the performance of the Islamic equity fund and the conventional equity fund for price-weighted portfolios in the bearish period because the p-value is greater than the 5% significance level. Thus, the null hypothesis 1 (There is no significant difference between the performance of an Islamic mutual fund and a conventional mutual fund (on both a price-weighted and equal-weighted basis) cannot be rejected.

Table 5.20: Price-weighted Islamic vs. FTSE4Good Global Index

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islpw - ggl	.01400	.03026	.00957	-.00765	.03565	1.463	9	.177

The results shown in Table 5.20 indicate that there is no significant difference between the performance of the Islamic equity fund and the FTSE4Good Global Index performance for price-weighted portfolios in the bearish period because the *p*-value is greater than the 5% significance level. Therefore, the null hypothesis 5 (There is no significant difference between the performance of an Islamic mutual fund and the FTSE4Good Global Index (on both a price-weighted and equal-weighted basis) cannot be rejected.

Table 5.21: Price-weighted Islamic vs. S&P 500 Index

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islpw - spx	.00800	.03584	.01133	-.01764	.03364	.706	9	.498

The results in Table 5.21 indicate that there is no significant difference between the performance of the Islamic equity fund and the S&P 500 INDEX for price-weighted

portfolios in the bearish period because the p-value is greater than the 5% significance level. Therefore, the null hypothesis 4 (There is no significant difference between the performance of an Islamic mutual fund and the S&P 500 (on both a price-weighted and equal-weighted basis) cannot be rejected

Table 5.22: Price-weighted Islamic vs. MSCI

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1 islpw - msci	.01600	.02591	.00819	-.00253	.03453	1.953	9	.083

The results in Table 5.22 show that there is no significant difference between the performance of the Islamic equity fund and the MSCI AC World Index for price-weighted portfolios in the bearish period because the p-value is greater than the 5% significance level. Therefore, the null hypothesis 6 (There is no significant difference between the performance of an Islamic mutual fund and the MSCI AC World Index (on both a price-weighted and equal-weighted basis) cannot be rejected. However, the null hypothesis 6 can be rejected at the 90% confidence level: there is no significant difference between the performance of the Islamic equity fund and the MSCI AC World Index for price-weighted portfolios in the bearish period because the p-value is less than the 10% significance level.

Table 5.23: Equally-weighted Islamic vs. Ethical Mutual Funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1 islew - ethew	.01060	.03244	.01026	-.01261	.03381	1.033	9	.328

The results in Table 5.23 show that there is no significant difference between the performance of the Islamic equity fund and the ethical equity fund for equal-weighted portfolios in the bearish period because the p-value is greater than the 5% significance level. Therefore, the null hypothesis 2 (There is no significant difference between the performance of an Islamic mutual fund and an ethical mutual fund (on both a price-weighted and equal-weighted basis) cannot be rejected.

Table 5.24: Equally-weighted Islamic vs. Conventional Mutual Funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islew - conew	.00900	.03348	.01059	-.01495	.03295	.850	9	.417

The results displayed in Table 5.24 show that there is no significant difference between the performance of the Islamic equity fund and the conventional equity fund for equal-weighted portfolios in the bearish period because the *p*-value is greater than the 5% significance level. Therefore, the null hypothesis 1 (There is no significant difference between the performance of an Islamic mutual fund and a conventional mutual fund (on both a price-weighted and equal-weighted basis) cannot be rejected.

Table 5.25: Equally-weighted Islamic vs. DJIMI

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islew - djim	.00400	.02547	.00806	-.01422	.02222	.497	9	.631

The results in the table 5.25 show that we cannot reject the null hypothesis 3(there is no significant difference between the performance of the Islamic equity fund and the Dow Jones Islamic Market World for equal-weighted portfolios because the p-value is greater than the 5% significance level)

Table 5.26: Equally-weighted Islamic vs. FTSE4Good Global Index

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islew - ggl	.01000	.03830	.01211	-.01740	.03740	.826	9	.430

The results displayed in Table 5.26 depicts that there is no significant difference between the performance of the Islamic equity fund and the FTSE4Good Global Index for equal-

weighted portfolios in the bearish period because the p-value is greater than the 5% significance level. Therefore, the null hypothesis 5 cannot be rejected.

Table 5.27: **Equally-weighted Islamic vs. S&P 500 Index**

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islew - spx	.00400	.04195	.01327	-.02601	.03401	.302	9	.770

The results reported in Table 5.27 show that the null hypothesis 4 cannot be rejected as there is no significant difference between the performance of the Islamic equity fund and the S&P 500 INDEX performance in the bearish period for equal-weighted portfolios because the p-value is greater than the 5% significance level.

Table 5.28: Equally-weighted Islamic vs. MSCI

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islew - msci	.01200	.03327	.01052	-.01180	.03580	1.141	9	.283

The result in Table 5.28 showed that there is no significant difference between Islamic equity fund performance (equally weighted portfolio) and MSCI AC World Index in the bearish period because the *p*-value is greater than the 5% significance level. Thus, the null hypothesis 6 cannot be rejected.

5.5.4.3. Testing the Performance during the Bullish Period: Jan. 2004 – Mar. 2008

This subsection elucidates whether or not a difference exists between Islamic equity funds performance and Dow Jones Islamic Market World for price-weighted portfolios in the bullish period. The comparison of Islamic mutual funds with Ethical mutual funds is provided in table 5.29.

Table 5.29: Price-weighted Islamic *vs.* Ethical Mutual Funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1 islpw - ethpw	-.00245	.02369	.00325	-.00898	.00408	-.754	52	.454

The results in Table 5.29 demonstrate that we cannot reject the null hypothesis 2: there is no significant difference between the performance of the Islamic equity fund and the ethical equity fund for price-weighted portfolios in the bullish period because the *p*-value is greater than the 5% significance level.

Table 5.30: Price-weighted Islamic *vs.* Conventional Mutual Funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1 islpw - conpw	-.01170	.04573	.00628	-.02430	.00091	-1.862	52	.068

The results in table 5.30 indicate that there is no significant difference between the performance of the Islamic equity fund and the conventional equity fund for price-weighted portfolios in the bullish period because the p-value is greater than the 5% significance level. Therefore, the null hypothesis 1 cannot be rejected. However, the null hypothesis 1 can be rejected at the 90% confidence level (10% level of significance): there is no significant difference between the performance of the Islamic equity fund and the conventional equity fund for price-weighted portfolios in the bullish period because the *p*-value is less than the 10% significance level.

Table 5.31: Price-weighted Islamic vs. DJIMI

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1 islpw - djim	-.00057	.01460	.00201	-.00459	.00346	-.282	52	.779

The results in Table 5.31 show that there is no significant difference between the performance of the Islamic equity fund and the Dow Jones Islamic Market World for

price-weighted portfolios in the bullish period because the p-value is greater than the 5% significance level. Therefore, we cannot reject the null hypothesis 3.

Table 5.32: **Price-weighted Islamic vs. FTSE4Good Global Index**

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islpw - ggl	.00226	.01589	.00218	-.00212	.00664	1.037	52	.304

The results of Table 5.32 indicate that there is no significant difference between the performance of the Islamic equity fund and the FTSE4Good Global Index for price-weighted portfolio in the bullish period because the p-value is greater than the 5% significance level. Thus, the null hypothesis 5 (There is no significant difference between the performance of an Islamic mutual fund and the FTSE4Good Global Index (on both a price-weighted and equal-weighted basis) cannot be rejected.

Table 5.33: Price-weighted Islamic vs. MSCI

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islpw - msci	-.00057	.01460	.00201	-.00459	.00346	-.282	52	.779

The results in Table 5.33 show that there is no significant difference between the performance of the Islamic equity fund and the MSCI AC World Index for price-weighted portfolios in the bullish period because the *p*-value is greater than the 5% significance level. Thus, the null hypothesis 6 cannot be rejected.

Table 5.34: Price-weighted Islamic vs. S&P 500 Index

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islpw - spx	.00396	.01459	.00200	-.00006	.00798	1.977	52	.053

As Table 5.34 demonstrates, there is no statistically significant difference between the performance of the Islamic equity fund and the S&P 500 INDEX for price-weighted portfolios in the bullish period because the p-value is greater than the 5% significance

level. Thus, the null hypothesis 4 can be rejected. However, the null hypothesis 4 can also be rejected at the 90% confidence level (10% level of significance): there is no significant difference between the performance of the Islamic equity fund and the S&P 500 INDEX for price-weighted portfolios in the bullish period because the p-value is less than the 10 % significance level.

Table 5.35: Equally-weighted Islamic *vs.* Ethical mutual funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islew - ethew	-.00062	.01593	.00219	-.00501	.00377	-.285	52	.777

The results in Table 5.35 show that there is no significant difference between the performance of the Islamic equity fund and the ethical equity fund for equal-weighted portfolios in the bullish period because the *p*-value is greater than the 5% significance level. Therefore, the null hypothesis 2 cannot be rejected.

Table 5.36: Equally-weighted Islamic vs. Conventional Mutual Funds

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islew - conew	-.00226	.01409	.00194	-.00615	.00162	-1.170	52	.248

Table 5.36 shows that there is no significant difference between the performance of the Islamic equity fund and the conventional equity fund for equal-weighted portfolios in the bullish period because the p-value is greater than the 5 % significance level. Thus, the null hypothesis 1 cannot be rejected.

Table 5.37: Equally-weighted Islamic vs. DJIMI

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 islew - djim	-.00094	.01404	.00193	-.00481	.00293	-.489	52	.627

The results in Table 5.37 indicate, there is no significant difference between the performance of the Islamic equity fund and the Dow Jones Islamic Market World for

equal-weighted portfolios in the bullish period because the p-value is greater than the 5% significance level. Therefore, the null hypothesis 3 cannot be rejected.

Table 5.38: Equally-weighted Islamic vs. FTSE4Good Global Index

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islew - ggl	.00189	.01507	.00207	-.00227	.00604	.911	52	.366

The findings in Table 5.38 show that the null hypothesis 5 (There is no significant difference between the performance of an Islamic mutual fund and the FTSE4Good Global Index (on both a price-weighted and equal-weighted basis) cannot be rejected, as there is no significant difference between the performance of the Islamic equity fund performance and the FTSE4Good Global Index for equal-weighted portfolios in the bullish period because the *p*-value is greater than the 5% significance level.

Table 5.39: Equally-weighted Islamic vs. MSCI

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islew - msci	-.00094	.01377	.00189	-.00474	.00285	-.499	52	.620

Table 5.39 shows that there is no significant difference between the performance of the Islamic equity fund and the MSCI AC World Index for equal-weighted portfolios in the bullish period because the *p*-value is greater than the 5% significance level. Thus, the null hypothesis 6 (There is no significant difference between the performance of an Islamic mutual fund and the MSCI AC World Index (on both a price-weighted and equal-weighted basis) cannot be rejected.

Table 5.40: Equally-weighted Islamic vs. S&P 500 Index

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	islew - spx	.00358	.01533	.00211	-.00064	.00781	1.703	52	.095

Table 5.40shows that there is no significant difference between the performance of the Islamic equity fund and the S&P 500 INDEX for equal-weighted portfolios in the bearish

period because the *p*-value is greater than the 5% significance level. Thus, the null hypothesis 4 (There is no significant difference between the performance of an Islamic mutual fund and the S&P 500 (on both a price-weighted and equal-weighted basis) cannot be rejected. However, the null hypothesis 4 can be rejected at the 90% confidence level (10 % level of significance): there is no significant difference between the performance of the Islamic equity fund and the S&P 500 INDEX for equal-weighted portfolios in the bullish period because the p-value is less than the 10% significance level.

5.6. THE IMPACT OF NET ASSET VALUE AND MANAGEMENT FEE ON ISLAMIC MUTUAL FUNDS

In order to evaluate the impact of net asset value and management fee on Islamic mutual funds, the GMM econometric method is use. GMM provides a computationally convenient method for estimating the parameters of statistical models based on the information in population moment conditions. This structure has made it very popular in econometrics because competing economic theories often imply that economic variables satisfy different sets of population moment conditions. The specific form of these population moment conditions depends on the context, but the generic form of the GMM estimator is the same in each case. This flexibility means that GMM has been implemented in very diverse areas spanning macroeconomics, finance, agricultural economics, environmental economics and labour economics. Its widespread use in econometrics has both stimulated and been facilitated by the development of numerous statistical inference techniques based on GMM estimators. These inference techniques allow researchers, inter alia, to test hypotheses about the parameters of the econometric model and also to test whether the population moment conditions are consistent with the data.

In addition, GMM subsumes many other well-known estimators, such as least squares, instrumental variables and maximum likelihood. As a result, GMM provides a convenient

framework for considering general aspects of estimation and inference in statistics, and, in many ways, is becoming the common language of econometric dialogue[11].

Using the GMM model explained in section 5.3 this study regresses Islamic mutual fund performance on management fee and net asset value. The results in Table 5.47 show that the adjusted R^2 is 8.9%, which means that the net asset value and the management fees explain only 8.9% of the variations in the Islamic equity fund performance. This infers that there are other variables, which explain the dependent variables that are not included in the framework of this study.

Table 5.41: Generalized Model Results

Dependent Variable: PER				
Method: Panel Generalised Method of Moments				
Date: 07/16/10 Time: 23:29				
Sample: 2004 2009				
Cross-sections included: 17				
Total panel (balanced) observations: 102				
Identity instrument weighting matrix				
PER=C(1)+C(2)*NAV+C(3)* MF				
Instrument list: C NAV MF				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.085144	0.074032	1.150099	0.2529
C(2)	0.000316	9.21E-05	3.431506	0.0009
C(3)	-2.040515	5.146078	-0.396518	0.6926
R-squared	0.106789	Mean dependent var		0.091451
Adjusted R-squared	0.088744	S.D. dependent var		0.286722
S.E. of regression	0.273704	Sum squared resid		7.416486
Durbin-Watson stat	3.073404	J-statistic		4.25E-31
Instrument rank	3			

The coefficient of the net asset value (independent variable) is 0.000316, and is shown to be statistically significant at the 1% level of significance. This means that the net asset

[11] http://www.methods.manchester.ac.uk/methods/gmm/index.shtml

value significantly affects the Islamic equity fund performance when regressed with the management fees.

The coefficient of the management fees (independent variable) is -2.040515, which is shown to be insignificantly different from zero. This means that the management fees do not significantly affect the Islamic equity fund performance when regressed with the net asset value. However, the net asset value variable is significant at 1 % with the coefficient of 0.000316. It indicates that more net asset value would increase the returns on Islamic mutual fund. The R- squared and Adjusted R-squared with very low values indicate that the overall model is weak.

5.6. COMPARISON BETWEEN ISLAMIC MUTUAL FUNDS AND OTHER MUTUAL FUNDS AND INDICES

This section compares and contrasts the performance Islamic mutual funds with Ethical funds performance and conventional funds performance.

In table 6.48 all the variables been assessed versus all type of funds and indices to show a clear picture of the comparison between all variables and ratios.

As can be seen from table 5.42, for the price-weighted portfolios, the performance of the conventional mutual fund with 0.0331 and 0.0015 Sharpe and Treynor ratios respectively is greater than that of the ethical and the Islamic mutual funds with 0.162, 0.008 and 0.0109, 0.006 Sharpe and Treynor ratios respectively, while the ethical mutual fund performance is greater than that of the Islamic mutual fund according to the Sharpe and Treynor ratios.

For the equal-weighted portfolios, Table 5.42 shows that the performance of the conventional mutual fund with 0.0655 and 0.0031 Sharpe and Treynor ratios is greater than that of the ethical and the Islamic mutual funds, while the Islamic mutual fund performance is greater than that of the ethical mutual fund according to the Sharpe ratio and Treynor ratios (0.0353 and 0.0019). .

Table 5.42: Comparison of IMFs and other Mutual Funds and Indices

	Islamic Funds Performance		Ethical Funds Performance		Conventional Funds Performance	
	Equally Weighted	Price Weighted	Equally Weighted	Price Weighted	Equally Weighted	Final Price Weighted
AVR	0.0041	0.0044	0.0040	0.0057	0.0051	0.0108
STDV	0.0392	0.0392	0.0519	0.0623	0.0510	0.1121
BETA	0.7838	0.7856	1.0028	1.1666	1.0886	2.3491
ALPHA	0.0004	0.0008	0.0018	0.0030	0.0040	0.0084
beta msci	0.7438	0.7435	1.0015	1.1596	1.0000	2.1596
Alpha msci	0.0013	0.0017	0.0003	0.0013	0.0014	0.0028
Rf	0.003	0.003	0.003	0.003	0.003	0.003
Sharpe Ratio	0.0162	0.0253	0.0109	0.0353	0.0331	0.0655
Treynor Ratio	0.0008	0.0013	0.0006	0.0019	0.0015	0.0031
Treynor Ratio Msci	0.0009	0.0013	0.0006	0.0019	0.0017	0.0034
Alpha (calculated)	0.0016	0.0019	-0.0007	0.0008	-0.0010	0.0016
Alpha MSCI (calculated)	0.0008	0.0012	0.0008	0.0025	0.0019	0.0079
Average Bullish	0.00859	0.00839	0.00876	0.01062	0.01006	0.02067
Average Bearish	-0.04659	-0.04415	-0.05772	-0.06012	-0.05652	-0.11664

Furthermore, all the *alphas* calculated from the regression are positive (negative), which indicates that all portfolios are underpriced (overpriced) according to the methodology of Jensen. The *alphas* for the portfolios of equal-weighted Islamic mutual fund, price-weighted for Islamic, ethical and conventional mutual funds are positive, which means that they are underpriced, while the alphas for the price-weighted ethical and conventional funds are negative, which means that they are overpriced.

5.7. CONCLUSION

This study focuses on the comparative performance between Islamic, ethical and conventional mutual funds using market indexes as benchmarks. It also investigates whether the Ramadan Effect plays any significant role and performs causality tests between Islamic mutual funds and as well as the impact of oil prices in the short and long run.

The results of the study show that the mean oil price does not cause Islamic mutual funds' performance, while the Islamic mutual fund's performance is found to cause the mean oil prices. There is, however, a long run relationship between the Islamic mutual funds and oil prices.

The findings of the study also demonstrate that the performance of Islamic mutual funds is different from the performance of the Islamic indices, and from ethical and conventional mutual funds, especially during the bearish and bullish periods. A decline in stock returns' volatility during the month of Ramadan was apparent in the study's results, but the return indicate no significant change in the performance itself. Moreover, those who invest in the funds tend to trade in Islamic mutual because of the *Shariah* Supervision of the Islamic mutual funds, and not for the management fees, which is perhaps why management fees are found to not affect the performance of the fund. Finally, the work shows that the net asset value is the main variable to be used in calculations, and so it is shown to affect the performance of Islamic mutual funds.

CHAPTER 6

SEARCHING FOR RAMADAN EFFECT ON THE PERFORMANCE OF MUTUAL FUNDS

6.1 INTRODUCTION

As mentioned before, Ramadan being the fasting month, a spiritually essential month, can have impact on the performance of the finances and other sectors, as people tend to slow down under the pressure of fasting and also due to allocating more times for their spiritual development. This can be a relevant issue for Islamic finance in general and mutual funds in particular.

Nowadays, we can see great changes in the trading activities of financial markets in the Muslim countries all over the world. These changes include reduced banking and working hours and the greater tendency of market participants towards religious beliefs during the fasting month of Ramadan. Most Muslim countries use both the Gregorian calendar, employed by businesses and governments, and the Islamic lunar calendar, which principally marks the religious activities and holidays. As a holy month, Ramadan, which is the ninth month of the Islamic calendar, is featured as a time for fasting, spiritual training and discipline. During Ramadan, the working hours of offices and business activities are reduced. These changes make it interesting to examine the behaviour of trading activity during Ramadan, as compared to the other months. Immediately after Ramadan comes to an end, there is a holiday called *Eid-ul-Fitar*, and Muslims celebrate it by buying new clothes and decorating their houses. There is also an increase in prices and costs during Ramadan. For example, food prices, as well as the price of clothes and some other commodities, rise. When the celebrations of *Eid-ul-Fitr* come to an end, the prices revert to their normal status. Following the traditional *Sunnat-e-Ibrahim* in the month of *Zil-Hajj*, marking the sacrifice days and *hajj* or the pilgrimigae. This results in less saving because it increases people's consumption and, consequently, reduces their purchasing power. After *Eid-ul Adha*, comes the month of *Muharam*, which is featured as a mourning month. To summarise, financial market trading activities are relatively affected by the behaviour of people during this month. It

should be noted that since it is part of a lunar calendar, it moves slightly, and each year it begins about 10 days earlier than the previous year.

The changes in these months are what make examination of the behaviour of trading activity so interesting. The present study attempts to find out whether there is any significant difference in trading activity in Ramadan than in the other months. In other words, there is a great opportunity to examine and determine any predictable patterns in the behaviour of stock returns and volatility, which are present in the month of Ramadan but not in the other months of the year. It will provide interesting findings to both regulators and participants in the financial markets of Islamic countries in the Middle East, the Far East and elsewhere (Mustafa, 2008).

This study expects to find a change in the stock market's returns or its volatility during the month of Ramadan, as all Muslims eagerly and enthusiastically follow the rituals of the holy month of Ramadan. There are considerably significant and visible changes in the social and economic lives of individuals during this month. Being considered as one of the five pillars of Islam, fasting during the month of Ramadan is a mandatory duty for all adult Muslims who are physically capable, otherwise their exemption is permitted. In Ramadan, when Muslims fast, they are required to abstain from eating food and drinking from dawn until sundown every day. Also, practising acts of piety and charity, and praying are the other holy acts encouraged by Ramadan. In addition to fasting, Ramadan is characterised by ritual prayers, recitations from the Holy *Quran*, and other acts of piety which significantly orientate the Muslim population towards Allah.

It should be noted that calendar anomalies have been the subject of considerable investigation, which are in opposition to the efficient market hypothesis. However, the effect of religious calendars on stock markets has rarely been the focus.

The Gregorian calendar is considered as the basis for many researchers willing to investigate the calendar anomalies. But this is not the case in some countries and societies which, besides the Gregorian calendar, also follow their own calendars, which are based on religion. For example, the Hebrew calendar, a strictly lunisolar-based calendar, is followed by Jewish society; Christian society follows the Gregorian calendar,

which is a solar calendar; and Hindus and the Chinese follow their own calendars respectively. The Islamic (also referred to as *Hijri*) calendar is based on a lunar calendar and is followed in Muslim societies. The appearance of the new moon marks the start of this calendar, which consists of twelve months. Comparing the duration of Islamic and Gregorian months, it becomes clear that the Islamic year is about eleven days shorter than the Gregorian year because, on average, a lunar month has only 29.53 days (Alrjoub, 2010). Almost all societies with religious calendars have religious days and months which they observe. For example, Christian society celebrates Christmas Day, Hindu society observes Deepavali, and Vesak Day is celebrated by Buddhists. In the Islamic calendar, there are also some religious days and months that Muslim societies observe and celebrate. These include the religious month like Ramadan and some religious days like *Eid-ul-Fitar* and *Eid-ul-Adha*.

6.2. RESEARCH AIM

After discussing in detail through econometric analysis the performance of Islamic mutual funds, this chapter aims to explore and examine the Ramadan effect on the globally selected Islamic mutual funds.

It should be noted that the empirical analysis provided in this chapter aims to contribute to the literature and fill a particular gap, as the existing body of knowledge mostly examined the Ramadan effect on the stocks or stock markets in a Muslim country. This study, however, aims to locate evidence, if any, for the effect of Ramadan on the performance of Islamic mutual funds operated globally rather than in a Muslim country. In the next section the related literature is discussed, while section 6.4 describes the data and methodology is elaborated whereas in section 6.5 the empirical results presented and a discussion is provided. Finally, Section 6.6 concludes the chapter.

6.3. LITERATURE REVIEW

Regarding the Islamic calendar effect, there have not been many significant studies, but some are available which research the impact of Ramadan on stock returns. In an attempt to locate the impact of Ramadan, Hussain (1999) pointed out that this behaviour can

make the stock market less volatile in volume and also decreases stock returns in Pakistan. This phenomenon is not only observed in Pakistan's financial market, it also occurs in the Saudi Arabian stock market. As an example, reports by Seyyed *et al.* (2005) show a decline in volatility and trading activity, in terms of both volume and return, in the Saudi Arabian stock market during Ramadan. The investigation, carried out by Hussain (1999), of volatility in the stock market in Pakistan during Ramadan found it to be less than in other months, although it did not include the behaviour of average return before and after Ramadan.

In a study on the effect of Ramadan on the Karachi stock market, Khaled (2006) attempted to investigate the effects that the Islamic calendar may have on the Karachi Stock Market by using both conditional and unconditional analysis of risks. The Islamic calendar allows the easy study of variation in risks on both an annual and monthly basis. To accomplish this task, he used five models, starting with a simple one and ranging to a conditional risk model, with different models producing different results. He found a significant effect in this regard and observed that the average return in the month of Ramadan is smaller and insignificant. However, he reported that there is a positive and significant average return in the months of *Shawwal* and *Zulqida*, which is a sign of an after-Ramadan effect in the Karachi stock market, considering the point that these two months come after Ramadan and the *Eid-ul-Fitar* festival. Since there is an increase in people's consumption during Ramadan and for the *Eid* festival, the investment in the stock market decreases. To cite a reason for the growth of trading activity in the months of *Shawwal* and *Zulqida* in the Karachi Stock Market, he refer to the tendency of people to invest in the stock market after Ramadan and *Eid*. Furthermore, higher kurtosis and higher positive skewness found in the month of *Shawwal* demonstrate investors' preferences to invest in this month. To summarise, the literature supports an after-Ramadan effect in the Karachi Stock Market, which is a rather low-risk market during Ramadan.

The potential effect of Ramadan as a major moving calendar event and the significance of such effects on economic and financial variables are mentioned by some authors. Analysing various macroeconomic variables in Turkey, Alper and Aruoba (2001) show

occasional inefficiency of usual seasonal adjustment procedures based on fixed holidays to remove all seasonality when moving holidays like Ramadan are taken into account in the series. However, no significant effect of Ramadan on the Istanbul stock market was reported based on the findings of their study. It should be noted that they showed that it is not possible for all deterministic seasonal components to be removed by conventional methods of deseasonalising moving events data. They demonstrate that in order to remove the residual seasonality, it is necessary that further deseasonalising be carried out by the application of specific categorical moving-event variables.

Moreover, during Ramadan, the volatility of the Pakistani Stock Market is significantly lower as found by Hussain (1999). He further mentioned that there are no significant changes in average returns during Ramadan, though the mean average return before and after Ramadan was not compared.

In another study, the effect of Ramadan on the Saudi Arabian stock market was examined by Seyyed *et al.* (2005), who conducted an analysis on several sector indices in the market. Their study revealed that there is a considerable decline in volatility and trading activity during the month of Ramadan. The latter study reconfirms Hussain's (1999) findings because both showed no significant change in average returns during Ramadan and did not examine the changes before and after Ramadan.

In Jordan, possible distortions to the predictions of accepted models of asset pricing and some interesting findings on the behaviour of asset returns around a moving anomaly (the 'Ramadan Effect') were examined AlRjoub (2010). Using the Jordanian stock market return data, the study showed strong evidence in favour of the Ramadan effect during the study period. When accounting for the beginning and the ending of the month, the results showed positive returns in the final 15 days of the month compared to an insignificant effect in the first 15 days. The study concluded that the month of Ramadan shows positive average returns. In addition, the first 15 days of the month are downers, and returns in the rest of the month are gainers. The study therefore implied that the Ramadan effect is not a turn-of-the-month effect, since the latter confirms that daily stock returns are higher in the first half relative to the second half of the trading month.

Fazal's (1998) study shows that the volatility of stock returns significantly decreases during this month. The reason for the decrease in volatility may be the result of the speed of economic activities, which is generally slower. During Ramadan, trading hours in Pakistan reduce, which can be another reason for the decrease in volatility. It is also probable that many Muslims avoid speculating in the stock market in this month. The decline in volatility, caused either by moral factors or the decreased trading hours, needs more investigation and may provide useful clues in this area. It is worth mentioning that a significant change in average return does not happen in Ramadan. So, whilst it is a great opportunity for investors when volatility is reduced, the increase speculative trading will counterbalance this and result in the immediate disappearance of any benefits.

Possible explanations for such an occurrence might be simply the trading behaviour of institutional or individual investors during this month, or it could be a manifestation of the pre-holiday effect, since the holiday is the three-day festival after Ramadan ends. However, this festival is part of the Muslims' religion, where all feel satisfied after they approach God during the month of Ramadan. This could justify the higher pre-festival returns as a result of a positive sentiment. This result is in line with that of Chan *et al*. (1996), who consider the holiday effect within a cultural context for the stock exchanges of Malaysia, Singapore, India and Thailand. They find a stronger holiday effect around cultural holidays, compared to state holidays with no cultural origin.

For example, there is a study by Frieder and Subrahmanyam (2004) on the effect of religious holidays on the S&P 500 index and New York Stock Exchange (NYSE) trading volumes. They focused on the Jewish High Holy Days of Rosh Hashanah and Yom Kippur and the Christian holy day of St Patrick. The results of the study showed a decline in volume on Rosh Hashanah and Yom Kippur, and a price increase was observed during the two days before the start of Rosh Hashanah and St Patrick's Day.

However, the current studies covered the Ramadan effect on the stocks and stock market, which are focused only on selected single Muslim countries. Therefore, these studies are failed to provide an effect on Islamic mutual funds which operate globally. In order to bridge this gap into the literature this study therefore will examine the Ramadan effect on

the Islamic mutual funds selected globally to find if there is any effect of Ramadan on the Islamic mutual funds.

6.3. DATA

The dataset utilised in this study consists of monthly net asset value (NAV) per unit prices of 52 Islamic equity funds. The data was sourced from Bloomberg at the National Investment Company (NIC) in Kuwait. This sample was selected from a larger sample such that it only includes Islamic funds which mainly invest in equity. The sample for the Islamic equity funds represents nearly half of the funds currently in existence.

This chapter examines monthly data of equity funds for those which are domiciled and those which operate globally within the period January 2004 until December 2009. The dataset holds information related to monthly net asset values (NAV), which has been calculated in order to test the comparative performance. Table 6.1 illustrates the descriptive statistics of the price weighted variable. The reported mean of the variable is 0.0044498 and the standard deviation is 0.0391548. As shown in the table the skewness value is -1.5814787 which portrays that the return of the Islamic mutual funds is slightly skewed.

Table 6.1: Descriptive Statistics for the Islamic Mutual Funds

Variable	Mean	Median	STDEV	Skewness	Kurtosis	Minimum	Maximum
Price Weighted	0.0044498	0.0080302	0.0391548	-1.5814787	-0.6232363	-0.1691368	0.07874201

6.4 EMPIRICAL METHODOLOGY

This chapter analyses the effect of Ramadan. This study will examine the Islamic mutual funds from all over the globe and control for the effects of Ramadan, this study uses the specification formulated by Fazal (1998):

$$\textit{Islamic mutual fund performance} = \alpha + \beta D_t$$

where $D_t = 1$ if it is Ramadan month or zero otherwise.

The following hypothesis is developed accordingly to test the concern research question of this chapter:

H_1: There is no significant effect for the month of Ramadan on the Islamic mutual fund performance

6.5. EMPIRICAL RESULTS AND ANALYSIS

6.5.1 The Effect of Ramadan Month (Dummy Variable) on Islamic Equity Fund Returns

Table 5.9 presents the results for examining the effect of the month of Ramadan as a dummy variable upon the performance of Islamic Equity Fund returns. The results in Table 5.9 indicate that the null hypothesis cannot be rejected: there is no significant effect for the Ramadan Month on the Islamic equity fund returns because the *p*-value is greater than the 10% level of significance (1-confidence level (90 %).

The standard Ordinary Least Squared econometric method is used to evaluate the Ramadan effect on Islamic mutual fund returns. As shown in table 5.9, the t-value of (-0.240) does not lie within the critical region with 10 % level of significance. Thus, the dummy variable of Ramadan month effect appears irrelevant. Therefore, the study concludes that Islamic mutual fund follows a similar trend in the month of Ramadan similar to other months.

While using two periods lag to examine the impact of Ramadan month, the study fails to reject the null hypothesis of an impact of Ramadan month effect on Islamic mutual funds performance. As shown in table 5.10, the *p*-value (0.558) is large enough to reject the null hypothesis at 10 % level of significance.

Table 6.2: Analysing the Ramadan Effect 1

Method: Least Squares				
Date: 06/21/10 Time: 19:34				
Sample: 2004M01 2009M12				
Included observations: 72				
ISLPW=C(1)+C(2)*D1				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.004786	0.004852	0.986495	0.3273
C(2)	-0.00404	0.016808	-0.240249	0.8108
R-squared	0.000824	Mean dependent var		0.00445
Adjusted R-squared	-0.01345	S.D. dependent var		0.039155
S.E. of regression	0.039417	Akaike info criterion		-3.60184
Sum squared resid	0.10876	Schwarz criterion		-3.5386
Log likelihood	131.6663	Durbin-Watson stat		1.29069

According to these results, no supporting evidence is found for the effect of the Ramadan Month on the Islamic equity fund performance when examined using a dummy variable for the Ramadan month (which takes the value of one for the respective two months of the year which contain the days of Ramadan). Thus it is safe to conclude that the month of Ramadan does not have any impact on the performance of Islamic mutual fund returns.

Lastly, the existing literature focused only on single country case in providing evidence for Ramadan effect. However, when this study examined Ramadan effect using global dataset failed to find any Ramadan effect. This may be due to the nature of those funds, which operates globally complying with the Shariah rules. This implies that while

Ramadan effect might take place in Muslim countries, but the global performance might set-off the adverse effect of Ramadan.

Table 6.3: Ramadan Effect

Dependent Variable: ISLPW				
Method: Least Squares				
Date: 06/21/10 Time: 19:35				
Sample: 2004M01 2009M12				
Included observations: 72				
ISLPW=C(1)+C(2)*D2				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.003285	0.005036	0.65219	0.5164
C(2)	0.007627	0.012885	0.591928	0.5558
R-squared	0.00498	Mean dependent var		0.00445
Adjusted R-squared	-0.00923	S.D. dependent var		0.039155
S.E. of regression	0.039335	Akaike info criterion		-3.60601
Sum squared resid	0.108308	Schwarz criterion		-3.54277
Log likelihood	131.8164	Durbin-Watson stat		1.293324

6.6 CONCLUSION

Nowadays, in financial market in the Islamic countries trading activities take place very regular. The current changes that occur include, reduced banking and working hours and the greater tendency of market participants to adhere to religious beliefs during the fasting month of Ramadan. In the majority of Muslim both Gregorian calendar Lunar calendar are followed: the Gregorian calendar is used by businesses and governments and the Islamic lunar calendar which principally marks the religious activities and

holidays. Ramadan being a part of a lunar calendar moves slightly, and each year begins about 10 days earlier than the previous year. The month of Ramadan presents a great opportunity to examine and determine any predictable patterns in the behaviour of stock returns and volatility something which is not presented by other months of the year. It provides interesting findings to both regulators and participants in the financial markets of Islamic countries in the Middle East, the Far East and elsewhere.

One expects a change in the stock market return or its volatility during the month of Ramadan is very likely. The Islamic countries around the World follow the ritual of the holy month Ramadan. Considerably significant and visible changes occur in people's social and economic lives. Ramadan is one of the five pillars of Islam, and it is obligatory for all adult Muslims to fast during this month, providing they are physically capable. It is worth noting that due to Ramadan not a significant change takes place in the average return in the market. On the other hand, evidence reveals that the volatility of stock returns remarkably decreases during this month (Fazal, 1998). The reason for the decrease in volatility may be the result of the speed of economic activities, which are in general. In Fazal's (1998) study it is shown that during Ramadan, trading hours in Pakistan reduce, which can be another reason for the decrease in volatility. It is because Muslims avoid speculating in the stock market in this month. The decline in volatility, caused either by moral factors or the decreased trading hours, requires more examinations that may give fruitful clues in this direction. It is important to note that a major change in average return does not happen in Ramadan. Thus, it is a great opportunity for investors when volatility is reduced. However, regarding this case the increasing speculative trading results in the immediate disappearance of any benefits.

In the meantime, the findings of this chapter contradict the results showed in studies of Khalid (2006) and Seyyed et al. (2004). Whereas there is after-Ramadan effect in the Karachi stock market (Khalid, 2006), a systematic pattern of decline in volatility during Ramadan was documented, implying a predictable variation in the market price of risk. This reveals that this anomaly appears to be consistent with a decline in trading activity during Ramadan (Seyyed et al., 2004). Albeit, there is a decline in stock return volatility in the month of Ramadan, the return indicates no significant change.

CHAPTER 7

CONEXTUALISATION OF THE FINDINGS: AN INTERPRETATIVE DISCUSSION

7.1. INTRODUCTION

This chapter explains the empirical findings of the mutual funds. In the following section, the chapter gives a comparison of the performance of the Islamic mutual fund during both the whole period and the bullish and bearish period. The next section (7.3) discusses some of the key findings of this study and reflects compares and contrasts them the existing relevant literature. Section 7.4 illustrates the effect of the month of Ramadan and finds its reflections within the literature, besides discussing the implications of these results. Section 7.5 deals with the model, whereas, final section gives a conclusion to the overall chapter.

7.2. COMPARISON OF THE PERFORMANCE OF THE ISLAMIC MUTUAL FUNDS DURING THE WHOLE PERIOD AND DURING THE BULLISH AND BEARISH PERIODS

Although the financial world is familiar with the notion that the performance of Islamic mutual funds is different from that of the Islamic indices and from that of the ethical and conventional mutual funds − especially during the bearish and bullish periods − empirical evidence of these differences has been mixed.

The results of the present study are consistent with the findings of Casarin at al. (2008), Abdullah *et al.* (2007), Girard and Hassan (2005), Kreander *et al.* (2005) and Bauer et al. (2005).

Evidence shows that Islamic funds do display consistent underperformance when measured against similar conventional and Islamic indices. However, through a matched-pair analysis, results demonstrate similar performance abilities between Islamic and ethical funds (Abdullah et al., 2007). In general, fund managers have not been able to deliver true alpha, and only a few managers had stock picking ability or market timing ability. This evidence is consistent with the market efficiency hypothesis (Casarin et al., 2008).

Studies showed that Islamic funds outperformed the conventional funds during bearish economic trends, while conventional funds showed better performance than Islamic funds during bullish economic conditions (Abdullah et al., 2007). Girard and Hassan (2005) also found that there is no material difference in performance between Islamic and non-Islamic indices. The Dow Jones Islamic Indices (DJIS) showed outperformance from 1996 to 2000 and then underperformance from 2001 to 2005 when measured against their conventional counterparts. Overall, similar reward-to-risk and diversification benefits exist for both Islamic and conventional indices. Kreander *et al.* (2005) suggest that there is no difference between ethical and non-ethical funds, according to the performance measures employed. There is similarly little evidence found of significant differences in risk-adjusted returns between ethical and conventional funds for the 1990-2001 periods. Introducing time-variation in betas, however, leads to a significant underperformance of domestic US funds and a significant outperformance of UK ethical funds, relative to their conventional peers (Bauer et al., 2005). The empirical results of this study show a difference in Islamic funds performance and Ethical funds performance. Similarly, a marked difference is also observed while comparing the latter with conventional funds performance. The Conventional funds outperform that of Islamic funds. The difference between three funds maintains for both equally weighted and final price weighted indices.

It should also be noted that this study has found results opposing those of Kraeussl and Hayat (2008), Hoepner, Rammal and Rezec (2009), Kraeussl and Hayat (2008), Haddad, Homaifar, Elfakhani and Ahmedov (2008) and Forte and Miglietta (2007).

For example, Kraeussl and Hayat (2008) showed that Islamic equity funds (IEFs) are relative underperformers compared to the Islamic market. Moreover, this underperformance has become more prevalent during the current financial crisis, during which IEFs also underperformed against conventional benchmarks. Similarly, Hoepner *et al*.'s (2009) findings are twofold: firstly, Islamic funds from eight (mainly Western) nations significantly underperform their international equity market benchmarks, while funds from only three nations do the opposite. Secondly, Islamic funds from the Gulf Cooperation Council (GCC) or Malaysia neither significantly underperform nor clearly

prefer small stocks. Hoepner et al. (2009) also found that Islamic funds are superior in more developed Islamic financial markets. While Islamic funds from these markets are competitive against international equity benchmarks, funds from nations with less Islamic assets (especially Western nations) tend to significantly underperform. Islamic funds' investment style is somewhat tilted towards growth stocks.

Islamic equity funds (IEFs) are relatively safe investment vehicles that do not significantly under- or outperform their Islamic as well as conventional benchmarks under normal market conditions. During the bear market of 2002, IEFs did, however, significantly outperform the Islamic and conventional markets. Furthermore, IEFs seem most attractive as part of a larger fully diversified portfolio, like a fund of funds, since they have superior systematic risk-to-return ratios (Kraeussl & Hayat, 2008).

Using the S&P 500 and the FTSE Global Islamic Indices on sector-structured Islamic mutual funds, Haddad *et al*. (2008) suggested that the volatility of the market and that of the Islamic mutual funds' portfolio behave differently with inter and intra market proxies. Forte and Miglietta (2007) also showed that the FTSE Islamic Index exhibits peculiar and interesting differences in portfolios in terms of econometric profile, compared to conventional and SRI indices.

The findings established by this study show that there is no significant difference between the performance of Islamic mutual funds and that of both the ethical mutual funds and the conventional mutual funds, and also no significant difference between the Islamic mutual funds and the well-known Islamic indices, either during the whole period or during the bullish or the bearish periods.

When comparing the Islamic mutual fund (price-weighted portfolio) and the Standard and Poor 500 (S&P 500) during the whole period, the mean of the Islamic mutual fund is 0.0044, while the mean of Standard and Poor 500 is 0.00101; therefore, the Islamic mutual fund outperforms the S&P 500 Index. In a bearish period comparison, the mean of the Islamic mutual fund (price-weighted portfolio) is -0.04415, while the mean of the MSCI AC WORLD Index is -0.05836; therefore, the Islamic mutual fund outperforms the MSCI AC WORLD Index. The Islamic mutual funds (price-weighted portfolio) have

significant differences compared with the conventional mutual funds (price-weighted portfolio) in the bearish period (the mean of the Islamic mutual funds is -0.04415, while the mean of the conventional mutual funds is -0.11664); therefore, the results show that Islamic mutual funds outperformed the conventional mutual funds.

During the bullish period, conventional mutual funds outperform the Islamic mutual funds: the mean of the Islamic mutual funds (price-weighted portfolio) is 0.00839, while the mean of the conventional mutual funds (price-weighted portfolio) is 0.02067. However, also during the bullish period, the Islamic mutual fund (price-weighted portfolio) outperforms the Standard and Poor (S&P 500), as the mean of Islamic mutual fund is 0.00839, while the mean of S&P 500 is 0.00465.

The Islamic mutual funds' portfolio and the DJIMI consist largely of the same mutual funds, which was the main reason for no significant differences between them. The reason for no significant differences between most of the variables is that the markets around the world increasingly move in the same direction in an effect known as contingent finance: if one of the major markets falls, the others will fall as well. The power of such contingent movement was displayed most strikingly in the middle of 2008 and at the beginning of 2009.

The difference between the Islamic mutual funds and the conventional mutual funds is related to the different mutual funds that each portfolio consists of and to the different investors who trade each portfolio. In the bullish period, the conventional mutual funds outperform the Islamic mutual funds, while in the bearish period the Islamic mutual funds outperform the conventional mutual funds; that is due to the greater beta for the conventional mutual fund (see Tables 6.12, 6.19, 6.25, 6.30, 6.36 and 6.42); so the reward-to-risk relationship appears clear here from the higher return for the conventional mutual fund in the bullish market and the lower return for the conventional mutual fund in the bearish market.

The difference in performance between the Islamic mutual funds and the MSCI AC WORLD Index in the bearish market is due to greater collective reaction of all the mutual funds around the world that the MSCI AC WORLD Index consists of. At the same time,

the impact on the Islamic mutual funds is less because they consist of fewer mutual funds.

7.3. REFLECTING ON THE FINDINGS

One of the findings of this study shows that oil price does not cause the Islamic mutual funds' performance, while the Islamic mutual funds' performance causes oil prices. There is, however, a long-term relationship between the performance of Islamic mutual fund and oil prices. This result is consistent with previous studies, which imply that during a recession period, the stock market leads the oil price because the equilibrium between the demand for and supply of oil is volatile and also because oil is not only a fuel but also an investment commodity. There have been no strong shocks witnessed in the oil market during recessionary periods as examined by this study. The oil price is not one of those indicators and can generally be considered a coincidental indicator (Choi & Hammoudeh, 2009).

There are some studies, which produced consistent results with the results of this research, while some contradicts. Empirical evidence shows that finance leads to growth in five out of six Middle Eastern and North African countries (Abu-Bader & Abu-Qarn, 2008). A number of empirical studies indicate that oil prices have no significant effect on stock returns; see for example: Cong *et al*., 2008. While Maghyereh's (2002) findings did not show any significant impact of oil shocks on stock index returns in emerging economies, it was also found that oil price shocks do not statistically have a significant impact on the real stock returns in most Chinese stock market indices (Cong *et al*., 2008). Additionally, empirical results do not support the hypothesis that oil prices lead to changes in stock market returns in countries like Turkey, Jordan and Tunis, as identified by Al-Fayoumi (2009). In the same vein, industrial production, money supply and oil prices do not appear to have any significant effect on stock returns (Kandir, 2008).

As found by Arouri and Fouquau (2009), although stock markets in countries like Qatar, Oman, and the UAE react positively to oil price increases, for Bahrain, Kuwait, and Saudi Arabia, oil price changes do not affect stock market returns. However, Abdelaziz

et al. (2008) found that the oil prices have a long-run positive effect on the stock market in countries such as Egypt, Saudi Arabia, Oman, and Kuwait. On the other hand, Huang *et al.* (1996) could not establish no correlation between oil futures' returns and the returns of various stock indexes in the 1980s. However, the cointegration of the oil and stock market returns is revealed. In their study, Anoruo and Mustafa (2007) indicate that the results from the modified VECM infer that the direction of causality goes from the stock market to the oil market but not vice versa. *The empirical findings of this study are in line with conclusion drawn by* Anoruo and Mustafa (2007), whereby it is shown that Islamic mutual funds affect the mean oil prices, but the latter do not affect the former.

Some studies also showed contradictory results with the present research. For example, Park and Ratti (2008) found that Oil price shocks have been shown to have a marked negative influence on the stock market in the majority of oil importing countries, with the exception of Norway, where a marked positive response to oil prices is shown by real stock returns. However, the empirical findings of this study reveal that oil prices do not have any impact on stock market return performance. In fact, as Cunado (2004) found oil prices significantly affect not only economic activity, but also indices prices. Furthermore, as El-Sharif et al (2005) show, as well as being always positive, the relationship is often highly significant and mirrors the direct impact on share values within the sector made by volatility in the price of crude oil.

Oil prices and oil price volatility both play important roles in economic growth or decline, which in turn affects real stock returns (Sadorsky, 1999). Papapetrou (2001) claims that oil prices are a significant factor in explaining stock price movements. Oil price innovations have a temporary effect on stock prices. A limited impact on the economies is caused by any change in the oil price or in the volatility of the oil price if (a) the change is below the threshold levels; (b) the change is above threshold levels, (c) it appears that the change in oil price is a better explanation for macroeconomic variables than the volatility of the oil price (Huang et al. 1996).

According to Gjerde and Sættem (1999), the stock market responds accurately to oil price changes. Studies show that, when measured by monthly standard deviations of daily oil

prices, oil price volatility aids the accurate forecasting of movements in the aggregate output of the US (Ferderer, 1996). While the OPEC price increases seem to have made a marked impression, the consequence of the 1980s price falls are smaller and more difficult to characterise (Hooker, 1999). For instance, one study showed that a positive oil shock will benefit the majority of the GCC markets (Hammoudeh & Choi, 2005).

Depending on the sector of activity, the stock returns' reaction to changes in the oil price varies significantly (Arouri & Jawadi, 2010). Within the capital market of Jordan, macroeconomic variables are mirrored in stock prices (Maghyereh, 2002). It is not only the stock returns of industries that are heavily dependent on oil that are sensitive to oil prices; those of some industries that are smaller users of oil also feel the impact of oil prices (Gogineni, 2010). Overall, it is not industry stock returns that are significantly affected by changes in the oil prices, but the stock returns of the trading sectors which suffer a negative and significant impact (Agusman & Deriantino, 2008).

Furthermore, while dividend yields and oil prices only affect returns in regimes characterised by multiple regime models, interest rate and inflation variables are important determining factors of stock returns (Sørensen, 2009). Changes in the oil price caused by external events illustrate that stock returns are only accurately forecast by these oil price changes (Sørensen, 2009).

It is the scale of the oil price changes that influences the direction and scale of the market's reaction to them (Gogineni, 2008). Consequently, while oil price changes which are most probably caused by supply shocks have a negative impact, oil price changes which are the probable result of shifts in aggregate demand have a positive impact on the same day market returns.

Moreover, in the case of Saudi Arabia, the causal relationship is consistently bi-directional. While it is the case that, in the other GCC member states, changes in stock market price do not demonstrate Granger causality of the movement in oil prices, oil price shocks do illustrate Granger causality of stock price movements. Oil price shocks in importing countries negatively influence the stock market, whereas real stock returns in oil exporting countries respond positively to oil price (Arouri & Rault, 2009). The

probability of positive and negative co-movement is linked to the instability of both international equity prices and oil prices (Leon, 2008).

Driesprong et al. (2003), for example, found evidence of statistically significant predictability in 12 out of 18 countries and in a world market index. Empirical results from Nigeria illustrate an instant and major negative response in terms of real stock returns to the oil price shock. The Granger causality test demonstrates that causation again runs from oil price shocks to stock returns, suggesting that oil price instability partly accounts for variation in the stock market (Adebiyi et al., 2009). In addition, stock returns increase by 2.5 per cent after a 10 per cent increase in oil prices in Norway, an oil exporting country (Bjørnland, 2008). It is therefore evident that, in emerging markets, oil price risk has a strong influence on stock price returns (Basher & Sadorsky, 2006). In many countries of the world, oil price fluctuations are a strong predictor of future stock market returns (Driesprong et al., 2003).

7.4. REFLECTING ON THE RAMADAN EFFECT

Since Ramadan has a different effect on individual behavioural norms, making them more spiritual and withdrawn, it is important to locate the impact of Ramadan.

This dissertation is consistent with Fazal (1998), who explored a seasonal pattern, the Ramadan effect, in the Pakistani equity market. Ramadan, the holy month of fasting, is expected to affect the behaviour of the stock market in Pakistan, where the environment in Ramadan differs from that of other months, as people devote more time to performing rituals and the general economic activity slows down. The effects of Ramadan on mean return and stock return volatility are examined by including a dummy variable in regressions and GARCH models: "The general process for a GARCH model involves three steps. The first is to estimate a best-fitting autoregressive model; secondly, compute autocorrelations of the error term and lastly, test for significance"[12] respectively. The analysis indicates a significant decline in stock return volatility in this month, although the mean return indicates no significant change. The empirical results shown in chapter 5,

[12] http://www.investopedia.com/terms/g/generalalizedautogregressiveconditionalheteroskedasticity.asp

section 5.5.4, revealed that Ramadan month does not have a significant effect on the Islamic equity fund returns.

On the contrary, this study's results contradict those of Khalid (2006) and Seyyed *et al.* (2005). Khalid (2006) showed that there is an after-Ramadan effect in the Karachi stock market, whereas Seyyed *et al.* (2005) documented a systematic pattern of decline in volatility during Ramadan, implying a predictable variation in the market price of risk. An examination of trading data shows that this anomaly appears to be consistent with a decline in trading activity during Ramadan. While there is a decline in stock return volatility in the month of Ramadan, the return indicates no significant change.

7.5 THE MODEL

The management fee for the fund is usually synonymous with the contractual investment advisory fee charged for the management of a fund's investments. Arguably the investors in the funds choose to invest in those mutuals, because of the *Shariah* supervision of Islamic mutual funds, not for the management fees, which is why the level of a manager's fee does not in itself give any meaningful indication as to how well or how badly that fund is going to perform.

The net asset value is the main variable in calculating the performance of the Islamic mutual fund, so it must affect the performance of the Islamic mutual fund. The findings of this study are consistent with Grinblatt and Titman (1992), who analysed the determinants of mutual fund performance. Tests of fund performance that employ fund characteristics, such as net asset value, load, expenses, portfolio turnover, and management fee are reported. These tests surprisingly suggest that turnover is significantly positively related to the ability of fund managers to earn abnormal returns. However, the study contradicts the research of Kreander et al. (2005), who indicated that the management fee is a significant explanatory variable for the Jensen measure. The empirical results shown in chapter 5, section 5.6, uncovered that management fees variable was not significant in the model. Thus, contrary to the Kreander et al's. (2005)

findings, this study concludes that management fees do not have a significant effect on Islamic mutual fund returns.

7.6. CONCLUSION

A review of relevant empirical studies yields mixed results when comparing performance between Islamic, ethical and conventional mutual funds as well as in regard to the Ramadan Effect and the relationship between Islamic mutual funds and oil prices in the short/long run. Through the statistical methods used in this study (augmented Dickey-Fuller [ADF] test and the Phillips-Perron [PP] test, Granger causality, cointegration and the Generalized Method of Moments Regression), the results supported the findings discussed in the literature that oil prices do not affect Islamic mutual fund performance; however, the performance of the Islamic mutual fund affects oil prices. The literature vigorously presented the long relationship between the Islamic mutual funds and oil prices. Results of the study also showed that the Islamic mutual funds' performance is different from that of the Islamic indices, ethical and conventional mutual funds, especially during the bearish and bullish periods. Results also showed that although there is a decline in stock return volatility in the month of Ramadan, the return indicates no significant change. Moreover, it is the *Shariah* supervision of Islamic mutual funds which attracts investors in the funds to trade those mutuals, rather than the management fees. This explains why no meaningful indication of how well or how badly that fund will perform can be gleaned from the level of a manager's fee.

The main variable in calculating the performance of Islamic mutual funds is the net asset value. Therefore, it must have an effect on the performance of Islamic mutual funds. The conclusions, implications, and recommendations will be discussed in the subsequent chapter.

CHAPTER 8

CONCLUSIONS

8.1 CONCLUSIONS

This study applies a comparison between the performance of Islamic equity funds versus that of ethical equity funds, conventional equity funds, the Dow Jones Islamic Market Index (DJIMI), S&P 500, FTSE4Good Global Index, MSCI AC World Index and oil prices. This study developed a model that considered most of the variables which affect the performance of mutual funds, as discussed in the earlier literature review. This research also tested the short-term and long-term relationship between oil prices and Islamic mutual fund performance. In addition, it covered the previous assessment test for any Ramadan Effect visible on Islamic mutual performance.

The dataset consists of monthly NAV per unit prices of 52 Islamic equity funds, 63 ethical equity funds and 100 conventional equity funds, which are obtained from a Bloomberg terminal at the National Investment Company (NIC) in Kuwait. This sample is screened from a larger sample to include only those Islamic funds that mainly invest in equity. The sample for the Islamic equity funds represents nearly half of the Islamic funds in existence in the world. This study examines monthly data of equity funds domiciled and operated globally from January 2004 to December 2009. The data includes monthly net asset value (NAV), management fees, Dow Jones Islamic Market Index (DJIMI), S&P 500 Index, FTSE4Good Global Index, MSCI AC World Index and oil prices. All of the data collected is drawn from Bloomberg. However, a weighted and equally-weighted price of all mutual funds in each portfolio (Islamic, ethical, and conventional) is calculated to test the comparison.

Two widely-used unit root tests are employed: the augmented Dickey-Fuller (ADF) test, and the Phillips-Perron (PP) test. in addition to this, in order to check if there

is a relationship in the long run between the variables, the Johansen's cointegration test employs two likelihood ratio (LR) test statistics: the maximal eigenvalue (λ-max) and trace (Tr), under the assumption that there is a linear deterministic trend in the data and no trend in VAR. The Granger causality test used to check if there is a short-term relationship between the variables. Finally, the performance of the equity fund changed continuously, so the Generalized Method of Moments regression is the suitable dynamic model.

Most of the articles in the earlier literature review comparing the different mutual funds use Sharpe and Treynor Ratios, which need measurement of the standard deviation and the beta in order to test the performance. This means that we must have hundreds of observations to get beta or standard deviation every 60 observations. On the other hand, the available data of the net asset value is on a monthly basis, and the study period contains 72 months, which makes it difficult to calculate both Sharpe and Treynor ratios to one ratio. in order to deal with this predicament, t-tests are conducted. Using Generalized Method of Moments (GMM) regression test, the effect of each of the independent variable on the dependent variable is identified.

The statistical results in general reveal that, Islamic funds have largely underperformed conventional funds. They are generally characterised by lower return and high volatility, have limited numbers of profitable stocks or industries whose returns are strongly and positively correlated, moreover they have a smaller fund size and a lower fund subscription rate, and are mainly invested in large-capitalised or heavyweight stocks that are involved in defensive industries. This study confirmed a long-standing relationship between Islamic mutual funds and oil prices. The study also showed that oil

prices do not affect the Islamic mutual fund prices while the Islamic mutual fund prices do affect oil prices. During a recession period, the stock market leads the oil price because the equilibrium between demand and supply of oil is imperfect and therefore volatile and also because oil is not only a fuel but also an investment commodity.

The financial world is familiar with the notion that the performance of Islamic mutual funds differs from that of the Islamic indices, ethical and conventional mutual funds, especially during bearish and bullish periods. Results of the study shows that there is no significant difference between the performance of the Islamic mutual funds and that of the ethical and conventional mutual funds and between the Islamic mutual funds and the well-known Islamic indices either during the whole period observed or during the individual bullish and bearish periods. During the whole period, the Islamic mutual fund outperforms the S&P 500 Index. In the bearish period, the Islamic mutual fund outperformed the MSCI AC WORLD Index and the conventional mutual funds. During the bullish period, the conventional mutual funds outperformed the Islamic mutual funds. However the Islamic mutual funds outperformed the S&P 500. The Islamic mutual funds' portfolio and the DJIS consist largely of the same mutual funds, which is the reason for no significant differences between them. The markets around the world are contingent, that is to say they move in the same direction. Thus, there are no significant differences between most of the variables. However, empirical evidence of these differences has been mixed.

The difference between the Islamic and conventional mutual funds is related to the different mutual funds that each portfolio consists of and the different investors who trade each portfolio. In the bullish period, the conventional mutual fund outperformed

the Islamic mutual fund, while in the bearish period the Islamic mutual fund outperformed the conventional mutual funds: that is due to greater beta for the conventional mutual fund, so the reward-to-risk relationship appears clear here from the higher return for the conventional mutual fund in the bullish market and the lower return for the conventional mutual fund in the bearish market. The difference between the performances of the Islamic mutual funds and the MSCI AC WORLD Index in the bearish market is due to great reaction of all the mutual funds around the world that the MSCI AC WORLD Index consists of. The impact on the Islamic mutual fund is less because the Islamic mutual fund consists of fewer mutual funds.

The results of the present study should be interpreted cautiously and should not be seen as giving conclusive evidence that Islamic funds are inferior to conventional funds, or vice versa. In addition, the evidence of Islamic funds' underperformance does not in any way represent a disadvantage. Considering that the underlying philosophy of the funds actually goes beyond simply maximising a monetary return, as in the case of conventional funds, to satisfying other non-pecuniary motives including the fulfilment of religious obligation to *Shariah* principles while making an investment. Outperforming conventional funds may, therefore, not be the main challenge for Islamic funds; however, the funds are nevertheless expected to generate a satisfactory level of return and preferably one which is not substantially lower than the return of conventional funds. This is vital in order for Islamic funds to remain competitive and viable to general investors.

Previous studies have emphasised the need to construct an appropriate portfolio performance measure in order to have a fair evaluation of fund performance which, in

turn, provides a more robust way to analyse the attractiveness of the active services and expertise provided by fund managers. In fact, the scope of the study of fund managers' performance was first limited to analysing portfolio return and risk. It has now expanded to include broader issues like trading microstructures, including the perseverance in fund performance and the impact of transaction costs as well as fund managers' special investment skills, such as market timing ability, stock picking talent and management styles.

8.2. IMPLICATIONS

The mutual fund industry serves as an investment vehicle in the financial system. Since it was first established in the UK and the US, the mutual fund industry has grown significantly. In addition, governing bodies are satisfied that the mutual fund environmental and operational activities are transparent and have not violated the regulations. Wealth appreciation is one of the many benefits to mutual funds for different purposes through the various diversification benefits. Furthermore, there is a broad range of mutual funds, with features including equity, bond, money market and other types of funds. Although the largest population is equity funds, every type of fund has its own risk and return features.

Results of the study are consistent with several studies discussed in the literature. Findings of the study confirmed that mean oil price does not affect Islamic mutual funds' performance, whilst Islamic mutual funds' performance causes oil prices. Since demand and supply equilibrium on oil is unpredictable and oil is considered both as an investment commodity and a fuel, the stock market leads oil prices. As an economic variable, the stock is one of the 11 leading indicators that make up the Leading Economic Indicators

Index. It is generally accepted that this leads the economy by six to nine months. Since the oil price is not one of those indicators, it can generally be regarded as a coincident indicator (Hammoudeh et al., 2009). This result is consistent with many previous studies (Abdelaziz et al., 2008; Abu-Bader & Abu-Qarn, 2008; Al-Fayoumi, 2009; Anoruo & Mustafa, 2007; Arouri & Fouquau, 2009; Cong et al., 2008; Kandir, 2008; Huang et al., 1996; Maghyereh, 2002).

However, some studies have indicated contradictory results with the present study (Adebiyi et al., 2009; Agusman & Deriantino, 2008; Arouri & Jawadi, 2010; Arouri & Fouquau, 2009; Basher & Sadorsky, 2006; Bjørnland, 2008; Cunado, 2004; Driesprong et al., 2003; El-Sharif et al., 2005; Ferderer, 1996; Gjerde & Sættem, 1999; Gogineni, 2008, 2010; Hammoudeh & Choi, 2005; Hooker, 1999; Leon, 2008; Maghyereh, 2002; Park & Ratti, 2008; Papapetrou, 2001; Sadorsky, 1999; Sørensen, 2009; Forte and Miglietta 2007; Haddad et al.,2008; Hoepner et al., 2009; Kraeussl and Hayat, 2008). This contradiction can be attributed to different periods of time, different data sets utilised and differences in the macro-economic climate.

The results obtained from past studies on the performance of ethical funds appear to be inconclusive. There seem to be persistent disagreements amongst researchers as to the power of ethical funds to outperform or perform on the same footing as conventional funds. However, the emergent and growing evidence for ethical funds is encouraging enough to make these funds a viable investment instrument. The presence of certain research variables, such as the use of various data sets or sampling and market conditions applied in the previous studies, are associated with the contradictory results obtained.

Nowadays, changes are commonplace in the trading activities of financial markets in the Islamic countries all over the world. Recent changes include reduced banking and working hours and the greater tendency of market participants to adhere to religious beliefs during the fasting month of Ramadan. Most Islamic countries use both the Gregorian calendar, to be used by businesses and governments, and the Islamic lunar calendar, which principally marks the religious activities and holidays. Since Ramadan is part of a lunar calendar, it moves slightly, and each year it begins about 10 days earlier than the previous year. A great opportunity to examine and determine any predictable pattern in the behaviour of stock returns and volatility is presented by the month of Ramadan; something which is not presented by other months of the year. It will provide interesting findings to both regulators and participants in the financial markets of Islamic countries in the Middle East, the Far East and elsewhere.

Considering the fasting and other activities during Ramadan, one may anticipate a significant change or volatility in stock market's returns. That is because, during Ramadan a considerable change would occur in people's social and economic lives. One expects a change in the stock market return or its volatility during the month of Ramadan. The rituals of the holy month of Ramadan are eagerly followed by all Muslims. . Considered one of the five pillars of Islam, it is obligatory for all adult Muslims to fast during the month of Ramadan, provided that they are physically capable, (exemption is permitted otherwise). Ramadan does not result in a very significant change in the average return in the market. In Fazal's (1998) work it is revealed that during the month of Ramadan, the volatility of the stock returns would witness a marked decline. This decline

may be attributed to the sluggish speed of economic and financial activities, which remain slow during this period. The same study shows that during Ramadan, trading hours in Pakistan reduce, which can be another reason for the decrease in volatility. Also, it is probable that many Muslims avoid speculating in the stock market in this month. The decline in volatility, caused either by moral factors or the decreased trading hours, needs more investigation that may provide useful clues in this area. It is worth mentioning that a significant change in average return does not happen in Ramadan. Thus, it is a great opportunity for investors when volatility is reduced. However, regarding this case, the increasing speculative trading results in the immediate disappearance of any benefits.

Meanwhile, the findings of this study contradict those from the studies of Khalid (2006) and Seyyed et al. (2004). While there is after-Ramadan effect in the Karachi Stock Market (Khalid, 2006), a systematic pattern of decline in volatility during Ramadan is documented, implying a predictable variation in the market price of risk. This shows that this anomaly appears to be consistent with a decline in trading activity during Ramadan (Seyyed et al., 2004). Although there is a decline in stock return volatility in the month of Ramadan, the return indicates no significant change.

The existing literature focuses only on single country case in providing evidence for Ramadan effect. However, when this study examined Ramadan effect using global dataset failed to find any Ramadan effect. This may be due to the nature of those funds, which operates globally complying with the Shariah rules. This implies that while Ramadhan effect might take place in Muslim countries, but the global performance might set-off the adverse effect of Ramadan.

Moreover, the management fee for the fund is usually synonymous with the contractual investment advisory fee charged for the management of a fund's investments. The investors in the funds trade those mutual because of the *Shariah* Supervision of Islamic mutual funds, not for the management fees, which is why the management fees do not affect the performance of the fund. Thus, the net asset value is the main variable in calculating the performance of the Islamic mutual fund, so it must affect the performance of Islamic mutual funds.

Results of this thesis are consistent with those of Grinblatt and Titman (1992) on analysing the determinants of mutual fund performance. Tests of fund performance that employ fund characteristics, such as net asset value, load, expenses, portfolio turnover and management fee are reported. These tests surprisingly suggest that turnover is significantly positively related to the ability of fund managers to earn abnormal returns. Meanwhile, results of the study are contrary to those of Kreander et al. (2005), who indicated that the management fee is a significant explanatory variable for the Jensen measure.

8.3 LIMITATIONS

The limitation of the study is the time period examined, due to the young age of the Islamic Mutual Funds, which creates limited data resources and limited data providers. This restricts this researcher from observing longer period of time to extend the previous studies.

Moreover, albeit the time period taken for this study is big enough to come up with robust conclusions, however, a larger time period would make the study enable to draw even better, more robust and more consistent empirical results. In addition to this,

similar to the previous studies on Islamic mutual funds, this study also encountered some of the unavoidable issues. One of the key issues of the Islamic mutual funds, crops up as result of the newness of the of the funds' industry, therefore, this limitation is not avoidable. Another major limitation of this study, like various previous studies, is regarding the sample size of the equity mutual funds' survivorship bias, because only the current mutual funds are included in the analysis due to the data limitation of the mutual funds which were closed over the study period.

Regarding the empirical models, despite the fact that the empirical models used in this study are consistent with the relevant literature, they are however subject to criticisms and many limitations. Following the mainstream literature this study uses time series analysis and as result comes up with robust outcomes. Nevertheless, using a panel estimation technique for the mutual funds' data could improve the quality of the empirical results. Furthermore, since the impact of the investment skills of the mutual funds managers is not included in the empirical analysis, hence it may be considered on the limitations of this study. On the methodological side the major limitation of this study may be due to the existing valuation models that are replicated from the current studies.

8.4 RECOMMENDATIONS

Results of the current study examines the relationship between the performance of the Islamic equity funds versus ethical equity funds, conventional equity funds, the Dow Jones Islamic Market Index (DJIMI), S&P 500, FTSE4Good Global Index, MSCI AC World Index and oil prices. From the results, a long-standing relationship was revealed between the prices of Islamic mutual funds and oil prices. The study shows that oil prices do not cause Islamic mutual fund's performance while Islamic mutual fund's

performance do cause oil prices. Findings reveal no significant difference, either during the whole period or during the bullish or bearish periods, between the performance of Islamic mutual funds and those of ethical and conventional mutual funds and between the Islamic mutual funds and the well-known Islamic indices.

The array of literature on active fund management does not end the debate regarding whether these funds tend to be closet index trackers or whether there is a certain degree of skill involved in the active management of funds. The literature provides conflicting results regarding the ability of mutual fund managers in generating excess returns for their portfolios. Recent studies have utilised a different approach and provided evidence that individual stocks selected by superior fund managers tend to outperform the markets. However, there is more recent evidence regarding the ability of fund managers to generate superior returns, and closet index tracking behaviour cannot be generalised for all or most active index trackers. Further research on this relatively recent topic must be conducted to reach a more appropriate conclusion regarding the behaviour of active managers in comparison with the passive fund managers.

A large number of empirical studies are conducted to compare and measure the factor of performance, as far as ethical and conventional funds are concerned. Most of these studies, however, report insignificant differences between the two types of mutual fund performances. The only evidence and differential argument put forward by scholars is that of cost factor associated with ethical funds, which may be the reason behind the underperformance of these funds as unverified in some studies.

Future studies should be conducted using both quantitative and qualitative analytical approaches and utilising both secondary and primary data to overcome the

various shortcomings of the past studies and to ensure the thoroughness of the analysis. Future studies may include an examination of Islamic funds' operation and performance regarding the behaviour of Islamic fund investors in order to determine their primary motivation behind subscribing to Islamic funds and to examine their trading strategy when investing in the funds. Future studies may also look into the role and strategy of fund management companies in educating investors in Islamic funds, particularly in creating awareness of the noble intention and the true nature of Islamic funds as an investment instrument whose objectives go beyond the mere pursuit of monetary gains. Future studies may also include an investigation of how to improve the quality of *Shariah* information dissemination through mediums such as the Islamic fund prospectus, and proper training for fund managers and mutual fund agents.

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